The Dental Digest

February 1929

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THE DENTAL DIGEST

VOLUME XXXV FEBRUARY 1929 NUMBER 2

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THE DENTAL DIGEST
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THE DENTAL DIGEST

VOLUME XXXV FEBRUARY, 1929 NUMBER 2

Selecting a Form of Denture Service*

By ALFRED GYSI, D.D.S., Zurich, Switzerland

Since you have been so kind as to invite me to appear before you, I shall be glad to present some of the results of my long experience as a teacher of full denture work in a great university.

If you attend a dental meeting on the subject of advanced denture technic or visit a great dental exhibit, you will hear described and see demonstrated a full denture technic quite different from that which you may be taught in the dental college, and perhaps you may wonder why the difference should exist. The dental college cannot always teach the technic in any form of dentistry which you should follow during your professional life. Its task is to lay broad and deep the foundation upon which you are to erect the superstructure of professional achievement. The years of study are too short to make it possible for the college to teach the different forms of complicated technic of which you will need to become master. Not all the students are ready to be taught a high-class technic, and all class instruction must be suited to those students whose mental and practical processes are slow. You will therefore do well to regard all the rest of your life as a continuous postgraduate course in the art and science of dentistry, and you should early establish the habit of improving every opportunity for sound instruction.

Three Forms of Denture Service

Each dentist, as he comes face to face with the construction of full maxillary and mandibular dentures for a patient, must choose according to his vision and ability one of three forms of service. These have been described as professional service, average service and arbitrary service.

The term *professional denture service* has been coined to describe the most perfect form of service of which the profession may be capable at any time. The exact meaning of the term will change as the years pass and as knowledge is increased, but its principles will always remain. At the present time it includes the taking of good impressions, the establishment of correct central relation, the recording and reproduction of the more important movements of the mandible as they are presented by each individual patient, and an arrangement of the teeth which will perpetuate the movements to which the patient is accustomed and so that the dentures may exhibit the maximum of naturalness, comfort and efficiency.

* This address was given. by request, to students in the following dental colleges during the transcontinental tour which the author recently completed: University of Southern California, Loyola University (Chicago), Northwestern University, Western Reserve University, University of Toronto, and University of Pennsylvania.

All the numerous subsequent steps must be well performed.

The term *average denture service* implies that the mandibular movements of individual patients are not recorded, but that each patient is assumed to be an average patient, and that the teeth are set in an average arrangement on an articulator that reproduces, at least with fair accuracy, the average of a large number of mandibular movements. Such an articulator is sometimes spoken of as *non-adjustable.*

The term *arbitrary denture service* indicates that the dentist uses an articulator that does not correctly reproduce any of the mandibular movements, that the teeth are arranged without any attention to other mandibular movements than the opening and closing, and that the patient will be required to fit himself to the teeth rather than to have the teeth fitted to him.

Dentures made by arbitrary service usually permit the patient to masticate only with the straight opening and closing movement, and often not very well with that. This is the lowest known form of denture service, and some of it is very low indeed.

Two Principles in Selecting Service

In choosing among these forms of service the dentist's first desire will be to render the patient the most satisfactory form of service of which he is capable, but this desire will be modified by a very practical consideration, which is, that he will be compelled eventually to select that form of service which will prove most remunerative to him, because he will not have money enough to continue an unprofitable service indefinitely.

The Remuneration From Different Forms of Service

There are many dentists who believe that the arbitrary service is the most remunerative, because it consumes very little of the dentist's time, since the laboratory will do a large part of the work. They think that, because they take impressions and bites very quickly and send most of the work away, this form of service is very profitable. If dentistry is merely a business for the sale of rubber and teeth and there are no standards of professional aspiration and obligation, this conception of arbitrary service is probably true, but if there is any sense of professional obligation, arbitrary denture service is the least profitable of the three forms, for the following reasons:

(1) The dentures give but little satisfaction and for this reason patients return frequently for a long time for adjustments, so that in this way they use up a great deal of the dentist's time. Such adjustments may easily cost the dentist more than the dentures did in the first place.

(2) Many of the dentures have to be remade without an additional fee, and it is sometimes necessary for the dentist to purchase a second set of teeth in order to be able to remake them. Such dentures cause a great deal of adverse criticism of the dentist, so that many patients and much reputation are lost because of them.

(3) Competition among den-

tists on this plane of service is nearly always price-competition, and this keeps the fees very low, so that in many communities they are still from ten to fifteen dollars per denture.

Average denture service is more profitable than arbitrary denture service, if properly explained to patients, because it is on a somewhat higher plane, there is less competition, and such competition as there is is less likely to be on a price-basis. The fee for this form of service usually permits the use of more natural and more efficient teeth, the arrangement of the teeth is more comfortable and efficient, the dentist's reputation may be enhanced instead of injured, there are not so many adjustments, and not nearly so many plates have to be made over.

Professional denture service should be more profitable than average or arbitrary service for the following reasons:

(1) No intelligent dentist would try to sell it on a price-competition basis. If he cannot receive a fee which permits him to use the best appliances and materials, he should not undertake this form of service. A surprisingly large number of people will be found prepared for this form of service if they are properly educated concerning it, and if the terms of payment are such that they can meet them.

(2) It satisfies more patients than either of the other forms of service and is particularly pleasing to patients who cannot be satisfied in any other way. Well done, it greatly increases the dentist's reputation.

(3) While there are always adjustments to be made after dentures have been inserted and worn for a time, these are usually not so numerous nor so serious in this form of denture as in many of those from the other forms of service.

(4) An important item in connection with professional denture service is that it usually requires less time to make the dentures right in the first place than to make them wrong and then try to fix them.

(5) There is a general feeling that the technic for professional denture service must necessarily be confined to a few denture specialists, but this is not the case. The technic is not more difficult than good technic in the other forms of dental service, and once it has been mastered it consumes only a reasonable amount of time. It is therefore open to general practitioners who care to train themselves for it.

SOME CHARACTERISTICS OF PROFESSIONAL DENTURE SERVICE

Among the characteristics of professional denture service which I listed so briefly a few moments ago, I shall speak to you only concerning central relation and balanced occlusion, because these are in my special field of research.

My conception of central relation is that it is primarily a relation of the mandible to the maxilla and not a relation of one tooth to another, as so many dentists think. I consider this

relation to exist only when the mandible is in the most retruded position from which it can make lateral movements. There is also a vertical relation, but this differs in different conditions and introduces so many complications that I do not wish to speak about it now.

Ever since full denture work began, dentists have been devising ways of getting the mandible into central relation to the maxilla, and hundreds of methods which differ slightly from one another have been developed. All of them have failed in two important particulars, as follows: (1) they did not indicate to the dentist when the patient was not in central relation, and in which direction and how far he was out; (2) they did not make it possible for the dentist to be sure just when the patient was in central relation.

A few years ago I was so fortunate as to be able to show that if a metal point were attached to the incisor point of the maxillary bite rim, it would trace a Gothic arch on the registering plate attached to the mandibular bite rim when the patient made protrusive and lateral movements. This pattern has become known as the *Gothic arch,* as shown in Fig. 1. An arch with a sharp point could be traced only when the mandible was in the most retruded position from which it could make lateral movements. If the mandible were protruded even a little, the point of the arch would be rounded. When the registering point was in the apex of an arch with a sharp point, the mandible was in central relation. When the dentist could see that the registering point was not in the apex of such an arch, he knew that the patient was not in central relation, and he knew, for the first time in denture history, how far and in which direction the relation was wrong. This method has now become standard throughout much of the civilized world for the registering of central relation in edentulous patients.

Of course, there is a technic for tracing this Gothic arch and it requires some apparatus, but the technic does not take long to learn and is not difficult to practice. It enables the dentist to detect deformities of structure or deficiencies of movement that might otherwise pass quite unrecognized and might greatly affect the success of the dentures. It is worth while to master this technic, because the establishment of central relation is easily the most important single step in denture construction. Like charity, it covers a multitude of sins and, if it is lacking, practically all the other good qualities that the dentures may possess will be of no avail.

Balanced Occlusion

By balanced occlusion I mean that when the dentures come into contact in any position the points of contact between them will be sufficiently numerous and widely distributed over the mouth so that neither denture will be tipped out of position. It is obvious that balanced occlusion must occur not only in central relation but also in left and right lateral occlusion and in protrusive occlusion.

Balanced occlusion has other important aspects besides that of keeping the dentures in position. It enables the patient to exercise much greater masticating force than would otherwise be

possible, and it distributes that force over the entire area under the dentures and thus prevents concentration upon one portion of the dentures alone, with consequent rapid destruction of the tissues underlying that portion.

but some of the more important preliminary steps are the taking of good impressions, the production of good casts, the adaptation of exactly fitting baseplates, and the skillful manipulation of the occlusion rims in such way

Fig. 1.

The registering table is attached to the mandibular bite rim, and the incisor path marker to the maxillary bite rim. Lateral movements have been made and a sharp-pointed Gothic arch has been traced.

Protrusive movements also have been made and have traced an antero-posterior line. If this line is not in the sagittal plane of the cranium, it may afford valuable information of an asymmetry of mandibular movements peculiar to the patient.

Time does not permit me to go into minute detail as to the methods by which balanced occlusion is obtained, that the closing pressure is equalized over the area of both dentures. It should be evident that well-balanced

lateral occlusion and protrusive occlusion should start from well-balanced occlusion in central relation.

Well-balanced protrusive occlusion and lateral occlusion play important parts in increasing the masticating efficiency of the dentures, because they make the teeth "easy-running," that is, they enable the patient to masticate by means of gliding movements without cusp interference. These gliding movements double the fiber-cutting power of the teeth just as a drawing motion, when cutting with a knife, doubles the cutting efficiency of whatever downward pressure may be exerted. The importance of this gliding movement may be seen when one recalls that the efficiency of a file or a saw is entirely dependent upon the exercise of a gliding movement.

Fig. 2.

Here the incisor path marker is in the apex of a sharp-pointed Gothic arch. This is the best known indication that the mandible is in central relation to the maxilla. The point which registers the condyle path has been adjusted over the head of the condyle.

THE ADAPTATION OF TOOTH FORMS TO INDIVIDUAL REQUIREMENTS

While artificial teeth cannot be arranged to exhibit the maximum efficiency unless they are properly formed in the beginning, it is not probable that the teeth, as received from the dealer, will be capable of exhibiting all the efficiency that is expected from the dentures. It is the task of the dentist to make slight modifications of these teeth which will accommodate them to the patient's movements and establish on the cusps many small, sharp-edged, exacting interacting facets with the angulation indicated for the case.

The angulation of these facets can be obtained only by registering the mandibular movements habitual to the patient for whom the dentures are being constructed. These registrations should include the incisor Gothic arch in the horizontal plane and the movement of the condyles in the sagittal plane (Fig. 2.)

It is not necessary nor advisable, as I once thought it to be, to register the lateral movements of the condyle, but satisfaction will be obtained in nearly all full denture cases if the lateral condyle path of the articulator is locked at 15° of Bennett movement. (Fig. 3.)

The sagittal inclination of the incisor path will be established by the dentist arbitrarily to suit the conditions presented by the case. In any event, he will articulate the teeth with that inclination at about 30° to the occlusal plane. If the ridges are firm and high, he will probably give the teeth their last milling in the articulator, after the dentures have been vulcanized, at this same inclination, but if the ridges are

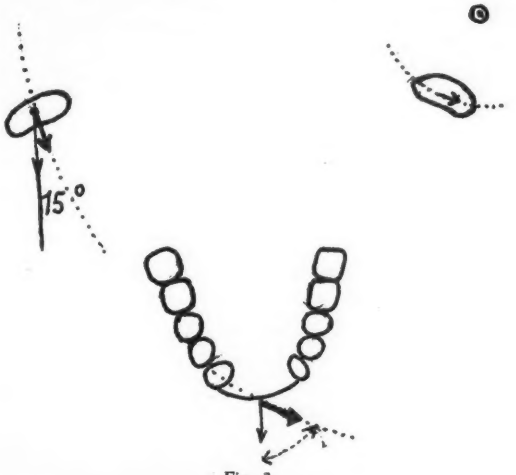

Fig. 3.

The path of the balancing condyle inclines inward on the average about 15° to the sagittal plane, and the articulator should be set and locked to produce this inclination.

The Gothic arch varies from about 45° to about 70° on each side of the median line and may well be reproduced on the articulator.

not firm and high, he will reduce this inclination as his judgment indicates. The prosthetist should bear in mind that only when the articulator has been adapted in this way will it be possible for him to give to the facets which he should form on artificial teeth the angulation most likely to be efficient and comfortable. The balance in lateral occlusion which results from milling, following such adjustment of the articulator, is shown in Fig. 4. In what I call *desperate cases*, that is, when the condyle path is steep and the ridges are absent or flabby, he may give the incisor path a horizontal or a negative inclination.

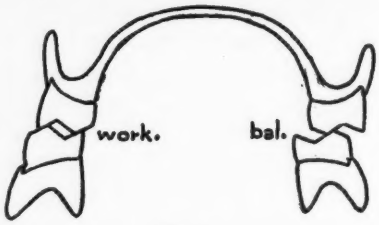

Fig. 4.

Diagrammatic illustration of the balance in lateral occlusion that results from milling the teeth in the articulator after vulcanization to establish facets in harmony with the condyle and incisor paths.

Balanced Protrusive Occlusion

Balanced protrusive occlusion is very important to the patient because it

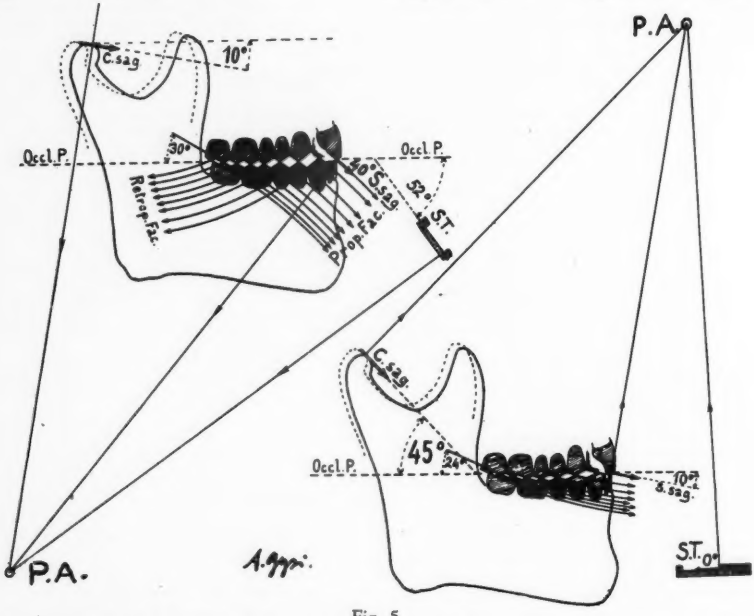

Fig. 5.

These two figures illustrate the influence of the condyle and incisor paths upon the protrusive facets which the dentist should establish on the occlusal surfaces of the teeth.

In the upper figure, the condyle path is relatively flat, but the incisor path, shown at S. T., is very steep (52°). The result of the interaction of these two paths is to produce steeply inclined facets upon the teeth. This is steeper than would occur in any case except a partial.

In the lower figure, the condyle path has been made very steep and the incisor path has been set at 0° for purposes of illustration. The contrast in the inclination of the protrusive facets here with those in the upper figure is very great.

makes possible efficient mastication by protrusive movements and by movements which contain a protrusive element. By that I mean that very few lateral movements of the mandible are of the extreme lateral type with no protrusive element, but most of the intermediate movements are a mixture of the lateral and the protrusive. It is important that the protrusive facets of the maxillary and mandibular dentures should be in harmony with each other and with the necessary combination of the sagittal incisor path and the sagittal condyle path, as is shown in

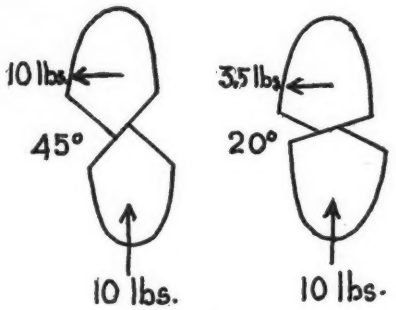

Fig. 6.

In both of these diagrams it has been assumed that there is a vertical closing pressure of 10 pounds on the teeth.

In the diagram on the left, the facets on the teeth are inclined at 45° and, by a law of mechanics, the entire closing force is transformed into a horizontal force, which may easily dislodge the denture.

In the figure on the right, the facets are inclined at only 20° and only 3½ pounds of the closing force are transformed into horizontal force, the remaining 6½ pounds being used in the direct closure of the dentures and becoming efficient in mastication.

Fig. 5. The angulation of these facets which results from a sagittal incline path steeper than 30° will cause the dentures to be easily tipped out of position and to exert a destructive horizontal pressure against the ridges. The effect of different angulations upon this horizontal pressure is diagrammatically shown in Fig. 6.

THE SAGITTAL INCISOR PATH

When the natural maxillary anteriors are in place and in good position, the mandibular anteriors are usually compelled to move rather steeply downward when moving forward, but when the maxillary anteriors are lost, this downward and forward guidance also is lost and it should not be reproduced in full denture cases.

The guidance for the sagittal inclination of the incisor path in full denture cases is not found on the patient, but rests wholly in the discretion of the dentist. He is expected to make such an inclination as will give the most satisfactory results in the conditions presented by the mouth. In any event, he will set the incisor guide at about 30° during the process of articulating the teeth. This is because the teeth in general use have an angulation of about 33° and require about that much incisor guide inclination to facilitate setting. When the dentures have been vulcanized and are ready for the final milling in the articulator with an abrasive, the dentist should gradually flatten the inclination of the sagittal incisor path until it reaches the condition which he believes to be indicated. If the alveolar ridges are firm and high, he may leave this inclination at the 30° used in setting the teeth. In proportion as the ridges are flatter or are flabby, he will reduce this angulation until, in *desperate cases,* that is, where the ridges are entirely absent or are very soft, he may give the incisor guide

incline a horizontal position or even a negative inclination. The horizontal inclination of the incisor guide incline and its effect in flattening the angulation of the facets to be formed on the cusps is shown in Fig. 7.

The Influence of the Sagittal Incisor Path on the Angulation of the Teeth

When the teeth are ground with an abrasive, the sagittal inclination of the incisor guide incline will be found to have a very powerful effect upon the angulation of the facets which the grinding will form, and the inclination of these facets has an important influence upon the stability of the dentures during mastication.

If the incisor guide incline is 40° or more, the angulation of all facets on the posterior teeth will be steep and the masticating force or the closing force, acting at right angles to the inclination of these facets, will be changed into a tilting force, especially against the buccal cusps of the maxillary molars. This is illustrated in Fig. 8.

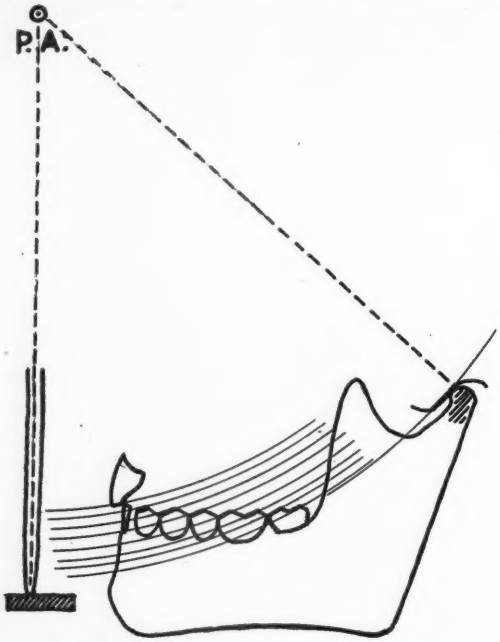

Fig. 7.

This is a diagrammatic illustration of the influence of the condyle and incisor paths upon the protrusive facets of the mandibular teeth.

A right angle was erected to the working part of the condyle path and a right angle to the incisor path, which here, for purposes of illustration, has been made horizontal. These two lines meet at P. A., which would be the location of the protrusive axis under these conditions.

The protrusive facets of the teeth will be inclined along arcs out of the center P. A.

In proportion as the sagittal inclina-

tion of the incisor guide incline is flattened, the angulation of these facets will be decreased and less and less of the closing force will be transformed into a tilting force, as is shown in Fig. 9.

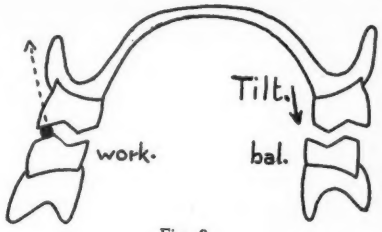

Fig. 8.

If the sagittal inclination of the incisor path is 40° or more, all the facets on the occlusal surfaces of the teeth will be steeply inclined. This will be especially noticeable in the facets upon the buccal surfaces of the maxillary molars.

If during mastication a bolus of hard food should lodge between the buccal cusps of the molars on the working side, the force used in closing the jaw may easily be transformed into a tilting force, which will throw the denture down on the opposite side.

BALANCED OCCLUSION IN OTHER FORMS OF DENTISTRY

Balanced occlusion is beginning to be recognized as very important in practically every form of dental service, as in the construction of partial dentures, the making of fixed and removable bridgework, all extensive operative procedures, in orthodontia and in the treatment of periodontoclasia.

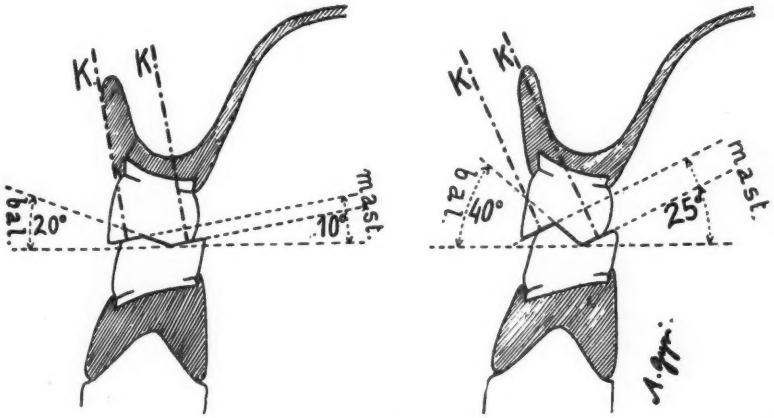

Fig. 9.

In the figure on the left, the sagittal inclination of the incisor path has not been made steep. The result is that the facets formed on the cusps of the molars are not steeply inclined and the force which hard food exerts at right angles to those facets does not fall far outside the denture border and is not therefore a tilting force.

In the diagram on the right, the sagittal incisor path has been steeply inclined, the facets on the molars are much more steeply inclined to the occlusal plane, and the force which a bolus of hard food will exert against the buccal cusps of the maxillary teeth may be so deflected as to fall far outside the denture border and become a tilting force.

The construction of full dentures offers the most elementary means for mastering the principles and practice of balanced occlusion and for a perception of its benefits and of the very unfortunate consequences when it is

not attained, so that, even if you do not intend to construct full dentures in your practice, you will do well to give it your keenest attention during your student days.

Many general practitioners now feel that full denture technic has become so complicated that they cannot master its principles nor apply it in general practice. This need not be the case, and I cannot resist the feeling that dentists who fail to learn a good full denture technic not only miss principles which would be important in all their practice, but neglect a form of practice which can be made decidedly remunerative, and they fail in their obligations to patients who are greatly in need of intelligent and efficient service.

I hope that while you are in college you will master the principles of balanced occlusion, that you may practice long and successfully, and that all the years of your life may be one continuous postgraduate course for learning better and better applications of it in every branch of dental service.

[CONSTITUTIONAL RATHER THAN LOCAL]

The dentist does not realize that all possible causes of malocclusion should be looked into from the constitutional rather than the local aspect, as malocclusion of the teeth is usually symptomatic of systemic disturbance of greater or lesser degree, and the possibilities of successful treatment of malocclusion depend largely on the response to growth stimulation in a healthy organism. —PULLEN.

The Status of Present-Day Dentistry

By M. A. MUNBLATT, D.D.S., Brooklyn, N. Y.

Dentistry has set a goal for itself, spurred on by great leaders and prophets such as Hunter, Mayo, Rosenow, Price and many others, and finally has reached such a stage of understanding and cooperation in this hectic day of great progress and almost miraculous accomplishments in any field of enterprise that it is in a position to offer its share.

That our profession is and justly should be looked upon as an important branch of medicine is a conceded fact today. That it plays a prominent part in the biological development of man and that it is a controlling factor in general hygiene and preventive medicine cannot be denied. With this clear understanding and introduction we shall attempt to expand on the subject.

To begin with, there are those who are so impressed with the medical connection and interdependence as to contend that before dentistry can make any further progress it will be necessary to change the name of the profession to *stomatology,* to institute a vigorous and radical campaign of readjustment of undergraduate preparation and postgraduate training, and ultimately to lead the possessor of that training to a medical degree. To be more explicit, their plan is so to arrange conditions and facilities as to combine both professions and ultimately do away with the degree of D.D.S.

On the other hand, there are those who maintain and concede interrelationship between medicine and dentistry, and who realize the necessity of fundamental preparation and training of the dental student in the basic medical sciences to the same extent as the medical student, but who maintain the advisability of keeping the two professions distinct, at the same time emphasizing the importance of cooperation and dependability of the one upon the other. The latter plan is backed by organized dentistry, and any plan of action must be supported by organized dentistry in order to accomplish its purpose and become a success. It is further to be noted that fundamentally and basically both factions are alike in their desire to unite the two professions cooperatively in order to solve the various individual problems.

The only difference is in their method of attack and primarily in the name of the specialty. After all, what is a name? We might say that there are certain advantages in the former plan, if we take into consideration the public interest that would be created in our change of policy, and in this way we might be better able to put over the campaign of prevention and early care of dental and oral diseases that is so dependent on public support and the cooperation of the patient. But, on the other hand, it is no doubt a cumbersome method of approach and has many difficulties of accomplishment. Suffice it to say that dentistry is well recognized as a specialty of medicine and commands a training and preparation equal to medicine. The dental

and medical colleges have recognized the fact and are meeting their responsibilities in the training of the future medical and dental graduates. This is well evidenced by the affiliations of medical and dental colleges under university control and student contact.

Another and greater problem that confronts the profession at present is the condition of the dental practitioners. While there are a good many who have kept pace with development and progress, and who have endeavored to train themselves technically and theoretically to meet their responsibilities, there are others who have kept aloof from all this reconstruction and advancement. Of course there is no intention on the part of the author to criticize any practitioner in his private practice, but in order that dentistry may achieve its goal as a public health factor it is vital to take this state of affairs into consideration.

Investigators and research men, such as Hyatt, Howe, Fones and many others, are appalled at the lack of reduction in dental and oral diseases and have directed their efforts toward their prevention and cure. Plans and solutions have been suggested, such as prophylactic odontotomy, dietetics, early care and observation of defects, and public and community dental services. The author wishes to express his appreciation of and confidence in the discoveries and suggestions of these individuals and wishes to express his faith in the practicability of the application of their theories in the eradication and prevention of dental and oral diseases.

The greatest handicap of our profession in the past has been its distinct separation from systemic considerations in the treatment and repair of dental and oral diseases. We have been trained to consider ourselves as a distinct unit, wholly concerned with the reconstruction and repair of dental and oral defects. In the majority of cases the dental practitioner has so arranged and so conducted his practice as to impress his patient with the fact that he is selling a commodity such as porcelain, gold or amalgam fillings, gold or platinum bridges or vulcanite plates, and not his personal professional services, for the maintenance of dental and oral health and thereby the prevention of systemic complications. The connection between dental and oral hygiene and general hygiene is emphasized little in the practical conduct of his profession.

However, a change is imminent and manifests itself in the efforts and observations of such men as Hyatt, Howe, Fones and many others, and also in the interest of the public and of the city officials in the creation of school clinics, radio lectures on dental and oral hygiene, community dental clinics and oral hygiene campaigns. The watchword has become *prevention* instead of *cure,* and an earnest effort to eradicate and lessen the ravages of dental and oral diseases is in progress.

To what extent can this goal be attained? Can we hope to realize our ambition, or is it only a dream to be dispelled on our awakening? Preventive dentistry is a term applied to that branch of our art that deals with prophylactic measures more or less of a local character and involves instrument and implement manipulations in conjunction with pharmaceutical and,

in some cases, electrical therapy, in order to bring about the desired results. Dietetics, prenatal and in-utero care are only the systemic considerations of prophylaxis, but are not the practical applications by the majority of dental practitioners.

Having arrived at a proper definition of the term *prevention* in its relation to dentistry, it might be possible now to decide whether we can solve the vexing problem of dental and oral diseases and thereby attain our goal by creating a condition wherein a considerable reduction in the number of severe cases of dental and oral destruction will be realized.

Before we go any further, it might be advisable to review the developments in the profession during the last two decades. It is with extreme pleasure that the author can state that his connections with the profession, both undergraduate and postgraduate, have been made during the time when the profession was undergoing the most trying, hectic and remarkable developments in the history of dentistry. We might justly say that the beginning of these two decades was the demarcation line between ancient and modern dentistry, figureatively speaking. To enumerate the remarkable steps in our scientific development, we will mention Black's *Scientific Classification of Cavity Preparation,* Angle's *Classification of Malocclusion,* Taggert's *Discovery and Development of the Gold Inlay,* Hunter's *Severe Condemnation of Septic Dentistry,* and Mayo's *Prediction of the Most Important Place Dentistry Will Take in Preventive Medicine.* We might follow these up with the various steps or progress made by such research men as Rosenow, Price, Billings, Howe, Bunting and others, and with the various steps taken in the perfection of technic in the different branches of our profession by such men as Rhein, Ottolengui, Kells, Tinker, Greene, Hall, Gysi, Hanau, Williams, Goslee, and the more recent men such as Stillman, McCall, and Gottlieb, in periodontia. Also, in the realm of orthodontia we might mention such men as Angle, Dewey, Lischer, Stanton, Hellman, Mershon and Ketcham, and in the field of oral surgery Blair, Brophy, Schamberg, Blum, Dunning, Winter and others.

It will be noted that the author attempts to correlate the various specialties in the enumeration of the progressive steps of scientific development. He does so with a definite point in view, namely, to emphasize the fact that as there is an interdependence between medicine and dentistry there surely is a greater and more urgent necessity for cooperation within our own field, and the bond between the different specialties in dentistry should be even greater.

We have reached a stage in the profession where it is considered by many that the expansion and development of the various technical procedures have become so difficult and so complicated that it is for the interest of the individual practitioner, the profession as a whole and the public that dentistry be divided into distinct specialties. The point may be well taken and advantages can be shown abundantly, but we must not forget that the progressive step in our profession is to develop dentistry as a distinct specialty of medi-

cine, and in order to practice it intelligently as such it becomes incumbent on us to broaden ourselves considerably within our own profession.

The author concedes the fact that an individual who does one thing continually and develops himself along that individual task will no doubt do that thing well, better perhaps than those who do different things and perform different tasks. In other words, he admits the advantages of special training, but he emphatically deplores the narrowness of mind it creates. It has gotten to a point in our profession where there are individuals, or so-called specialists, who consider it improper and bad practice for a general practitioner to perform an operation that justly belongs to their field of specialty. His contention is that the operation is so difficult that it requires special training and should be performed by specially trained individuals. The author deeply regrets such a viewpoint and will endeavor to prove the fallacy of the contention.

It is easily conceived that in the past dentistry was so unscientifically practiced that in order that a dentist make any scientific progress whatsoever it was necessary for him to develop himself along a distinct and individual branch and thereby perfect both the science and the technic of that operation, as well as the application of that technic to his practice. Dentistry, therefore, has developed these various specialties, and the author highly commends and respects those individuals who have developed the different branches of our profession to the high scientific plane on which they now stand. In other words, the discoveries and the solutions of the various technical specialists, together with the different research men, have now created a true science of dentistry, but they have overlooked the fact that there is most urgent need for a scientific combination of the various branches. It is the contention of the author that it is absolutely wrong, detrimental to professional progress and harmful to the public to encourage the practice of specialization in dentistry further without an equal broadening of the general practitioner. The sooner we unite ourselves into a combined unit as a medical specialty of dentistry, the sooner will we solve our individual scientific problems, as well as the economic ones, which must be considered if we are to reach our goal.

A specialist is only an individual who may be able to do one thing or practice one branch of the profession better than the average or general practitioner, but we must not lose sight of the fact that he is not the only one who can perform that operation well or practice that branch successfully.

While the author concedes that there are certain branches of the profession that lend themselves to a successful development toward specialization, he emphatically maintains that there are a good many of them that cannot succeed and will not succeed as distinct specialties under present-day conditions. He does not wish to create the impression that specialization in certain branches of the profession lacks many advantages, but it must not be forgotten that, no matter how powerful and how distinct a specialty may seem, it is absolutely necessary that it be laid on a foundation of broad general

knowledge and broad general training. At the same time it is necessary always to practice cooperation among all the specialties in the different branches of the profession.

As has been stated previously, certain of our specialties have developed as such because of the unscientific conditions in the past—and no doubt great progress has been made—but at present we have reached such a stage of scientific perfection that the teaching of the science and the technic in different branches has become so simplified that it can be included in the general practice of dentistry. Of course the author realizes that there are certain individuals who cannot perform certain operations and exercise certain technical procedures satisfactorily, he realizes the individual capabilities and inherent qualifications, but he still maintains that the science of any branch of our profession can and should be taught to every individual dentist. The application of the technic cannot be taught. That becomes an art, and it depends on the individual's ability to perform that art. That art cannot be taught and artists cannot be made, but the science of that art can be taught and the degree of perfection of the resultant product depends on the individual.

With that clear conception let us proceed further. We might state also at this time that the latter line of reasoning can be applied to any branch or specialty of our profession, and it then becomes self-evident that it is not for the profession as a whole to decide what one individual can or cannot do in his own private practice. That depends upon the individual himself, on the willingness and the desire on his part to apply himself diligently, and also on his own inherent qualifications. To be more concise, we might say that we let his conscience be his guide! However, we cannot deny the fact that it is the duty of the profession to encourage every one of its members to bring out the most that is in him for the benefit of all concerned. If we are to become an important public-health factor, as is the desire of the leaders of our profession, this line of reasoning must be practically applied in order for us to gain the support of the public, the philanthropist, the government officials and the medical profession, whose cooperation we so earnestly desire and most urgently need.

Let us now consider another very important angle of specialization. We have many scientific problems to solve and they are included in all branches of our profession. The variances of opinion are so numerous and so divergent that it becomes very bewildering for any practitioner to decide which procedure to follow or which treatment to institute in any operation or restoration. These problems are now so vexatious that they have of late become sufficient grounds for malpractice suits and have often been aired in court before a lay jury and an incompetent judge. It is a very sad situation and is only the result of our present process of rapid development. The present conditions of specialization have a good deal to do with the situation.

It has been stated before that in spite of the many benefits to be derived from specialization its great disadvantage is the narrowness of mind it creates. We

have also stated that it is our desire to become a united specialty of medicine, and we will now endeavor to prove this contention and show that it is the only method by which we will be able scientifically to solve our many problems. As a matter of fact, the author maintains that the so-called scientific problems of today, be they root-canal therapy, focal infection, fixed or movable bridgework, periodontia, orthodontia or oral surgery procedures, are only problems because of the narrow and distinct viewpoints brought about by the lack of cooperation between the different specialties and the parent profession of medicine as a whole. To be more explicit, it is maintained that they are not real scientific problems, but are only technical problems to be solved by the individual operator. To fill to the apex or not to fill to the apex, to employ a fixed or a movable-removable bridge, to perform a Rubitzeck operation or institute a careful instrument manipulation in the treatment of periodontoclasia, to institute or not to institute orthodontia treatments, or to curette or not to curette are only technical problems depending on the diagnostic and surgical judgment of the individual operator, as well as the condition of the patient.

We must not forget that dentistry is not an exact science, that it is only an applied science and must be employed as such, and in the solution of our problems it is apparent that we cannot make definite, set mathematical rules to be applied, as is done in geometry, algebra or engineering. We can arrive at certain rules or theorems by application of certain methods, and we can in this way solve the individual problems by a process of elimination. In other words, every patient presents an individual problem, and in the solution of that problem we must realize that we are dealing with an applied science and must be guided by the individual characteristics of the operator, the patient and the conditions involved. Because one individual devises a technic, no matter how simple or difficult it may be, and because that individual gets comparatively successful results in the majority of cases, we cannot maintain that his technic is the only correct technic or the best technic. We cannot maintain that another operator will get the same results as the originator of that technic, nor can we say that any technic will be as difficult or as simple in the hands of one individual as in the hands of another. We cannot say that what is good for one patient is good for another, or that what is good in one condition is good in another condition of the same patient. We must realize that we are facing more or less abstract problems that we can solve only by a process of elimination and the application of our past experience, and the results vary with the operator, the patient and the individual conditions.

The facts cited above have been entirely neglected in the rapid growth of our profession. We have, therefore, through our division into distinct specialties and our process of development of expert specialists at a time when dentistry was most unscientifically practiced, created problems that have become vexatious and most difficult of solution. We have made real, generally important scientific problems out of simple technicalities that require

only individual solutions. The author contends that the so-called pulpless-tooth problem and many others are not problems at all today. They were solved long ago when Hunter, Rosenow, Price, Mayo and others set forth their theories of focal infection. It is only for us to apply practically the results of their research work in every individual case so as to arrive at definite and proper conclusions.

We will attempt to prove this contention further. We have only to attend the various clinics and demonstrations arranged at different intervals to understand and notice the narrow and local viewpoints taken by the lecturers and clinicians. They arrange before us an elaborate display of models, instruments, implements and other paraphernalia so as to demonstrate their methods of technical procedure. They intend to instruct the various audiences in the proper technics. Their intentions may be sincere, but what are the results? Of course we realize that a great deal of good is derived from these demonstrations. They enable one to observe many principles and learn the various technics, be they new or old, and thereby perfect one's own technic in the conduct of one's practice, but they also have another serious effect. These models, we must not forget, are in the first place only models of ideal conditions, and the technics demonstrated are those of the individual operator. They may create in the mind of the observer a state of perplexity and fear and inferiority. Because an attempt is made to obtain the demonstrated results in the individual's practice and an endeavor to follow the technic as presented is undertaken with more or less unsuccessful results, the student or the individual thereby becomes discouraged and depressed. He is seldom told that these models are often the creations of laboratory technicians, and that the technic presented by the demonstrator often meets with failure in his hands as well as in others. To be more concise, we might say and emphasize at present that we have come to worship local technical problems more than the real basic individual problem with which we are concerned. We have entirely neglected the biological factors that form the bed-rock foundation of the science of dentistry.

Can you imagine the absurdity in the contention that periodontia, root-canal therapy, extraction of teeth, and various other branches of our profession are admitted to be so difficult and so complicated that it is necessary to place them in the hands of specially trained individuals? On the contrary, it has been the experience of the author, in the conduct of his practice, that all these complicated technicalities are simple in view of the scientific progress of our profession today. Basically and fundamentally the problems are alike; technically they are very similar and in the application of mechanical principles are to be varied only in the degree of application by the individual operator and the conditions. We have neglected the fact that dentistry is and should truthfully be a scientific specialty of medicine, and any attempt to treat locally any one of the conditions without proper attention to the systemic involvements is not practicing scientific dentistry. To fill a root canal aseptically so as to meet the best stand-

ards of the day and thereby bring about a healthy regeneration of bone and tissue around that tooth, without further attention to the rest of the dental apparatus and oral cavity as well as the various other systemic conditions of the individual, is incomplete scientific dentistry as it is known today. With this understanding, then, let us see to what extent we can approach our goal of preventive dentistry.

As has been stated before, great strides have been made in the attempt to eradicate dental and oral diseases, and while we can readily understand that we cannot wipe out all the ravages of these diseases, we must admit that a great deal can be accomplished in that direction. Education of the public is an important factor, oral hygiene campaigns and dietetic instruction will help considerably, but no great strides will be made unless we change our methods and viewpoints within the profession. We have enough scientific knowledge at hand today to advise against, administer for, treat and correct dental and oral defects and abnormalities, but the majority of dental practitioners are not properly trained to meet their responsibilities. Imagine the dilemma in which medicine would find itself if the same conditions existed. Surely the discovery of diphtheritic antitoxin, tuberculosis treatment, insulin, and various other treatments and remedies in medicine has required as much study, preparation and difficult work as any of our technical problems in periodontia, root-canal therapy, prosthodontia, or even oral surgery and orthodontia, if not more, and still these remedies are taught to the average practitioner and placed at his disposal.

It is further to be noted that in dentistry the greatest part of our work is in the form of surgery, dental or oral. We cannot deny the fact that to practice any branch of our profession successfully we must develop a high degree of technical skill, and the exactness and perfection required in the preparation and insertion of an amalgam filling, gold inlay, or any other kind of restoration require as much training as any difficult surgical operation in the practice of oral surgery. We are highly skilled in the manipulation of our instruments, and the basic scientific training necessary for one branch of our profession is the same as for another. The responsibilities involved are equally serious.

We must emphasize at present that it is necessary for us to encourage special study and preparation, and there is no doubt that there are a good many basic problems yet for us to solve. However, we cannot neglect the fact that these solutions and discoveries should be widely distributed and applied. Specialization undoubtedly will help solve these problems, but it must not be forgotten that specialists should be developed on a scientific basis, not as a result of economic and personal necessity. It is our duty to make the general practice of dentistry so economically sound as not to encourage the entrance upon specialization for any other reason than that of a scientific character. Furthermore, we must make an effort to see that the term *specialist* is properly applied and not abused, as it is at present.

Of late it has become the fad for

an individual who finds himself unsuccessful in the general practice of his profession, perhaps through no fault of his own, to decide to take a six-weeks' postgraduate course in some special subject or branch and come out as a full-fledged specialist. We are not to forget the fact that a specialist cannot be made by any course. He is usually developed regardless of any course or outside training. The individual must apply himself and thereby reach the stage of perfection and progress where he is worthy of the term *specialist*. He is by training one who can practice a particular branch better than the average individual, and in order to become worthy of that distinction it might be advisable through some authoritative source to have his qualifications as such passed upon. He might be judged by any original work, study or discovery he may present. Of course this is a question to be decided in the future by the various organizations of the different specialties.

There are other problems with which we have to contend today, and they are the results of the added responsibilities placed upon the dentist because of the advancement of the theories on focal infection and on the systemic connections between dental and oral conditions and the rest of the body. For instance, we have been confronted with the problem of the extraction of numerous teeth which do not show any local symptoms of abnormalities other than the rarefied areas manifested by the roentgenograph and the probable systemic involvements through focal infection. We overlook the fact that, if the premise of focal infection in the individual case is correct, we are facing a serious surgical problem. We are operating on a serious condition and in the great majority of cases do it with little conception of the general resistance of the patient, finding ourselves sometimes seriously involved with severe and oft-times fatal complications. Of late it has been the experience of many to find a simple extraction develop into a very complicated case that often proves fatal, and this can be verified by specialists and general practitioners alike. We have looked upon our operations very lightly in the past and found ourselves unequipped to cope with the situations. We do not attempt any physical diagnosis of the patient in the majority of cases, nor are we equipped to perform a blood test or any other bacteriological examination to guide us in our procedures.

It is not our intention at present to frighten the dental practitioner because, in spite of all precautions or lack of precautions, nature is usually willing to help. We realize that even in medicine a good many minor operations and treatments are undertaken without any such preliminary examinations and precautions, but this is a condition that is up to the judgment of the individual practitioner. The same can be said of dentistry. However, the conditions in medicine are such that, when a doubt and a skepticism do exist on the part of the individual operator, there are facilities to enable him to carry out the necessary preparations and precautions.

While it is true that a good many deliveries, tonsillectomies, abscess incisions, and even curettage, as well as many other minor operations, are

undertaken without much precaution and without a resort to the hospitalization of the patient, we cannot overlook the fact that the physicians are always prepared for any emergency that may arise. The dentist, on the other hand, lacks these many advantages and against his better judgment often undertakes certain operations and treatments that rightfully command hospitalization and other precautionary preparations. It is a serious condition and must be recognized and corrected.

Medicine has in the past and always will receive active and energetic lay support, financially and otherwise. We might realize the advantage medicine has in the fact that the public is always willing to act in an emergency, and upon this the medical profession mainly depends. The emergency in dentistry has not manifested itself up to the present, but we are just beginning to realize that it exists. Furthermore, we have come to such a stage in our social development that we are willing to listen to and realize the necessity for preventive measures. Medicine is receiving considerable support in that direction, while dentistry is entirely overlooked, although it is conceded by our great leaders to be an important factor in preventive medicine. Imagine the fact that in this advanced age and country there does not exist an efficient sanatarium, hospital or institution to cope properly with the problems of dental and oral diseases. How many severe complications and fatal results could have been avoided in the past if we had been as well prepared as the medical profession to meet the needs that arose!

Medicine has no doubt made great strides, and the perfection of that profession is greatly due to the support of the lay public as well as the philanthropists in the establishment of hospitals, dispensaries and clinics for further study and research. The governments of the various countries have also realized their responsibilities and have helped considerably. Where would medicine be today without that support? Of course we can realize that community medical service has some disadvantages and seems to hurt some individual practitioners of the profession, but it can be shown clearly that it is only an imaginary and exaggerated disadvantage that might be manifested in some cases. It is true that there may be a good many individuals in our country who abuse their right toward dispensaries and clinics to the disadvantage of the medical practitioner, but they are few and should be neglected in view of the many advantages derived from the system of charitable and community medical service. We might further consider another defect of our profession as it is practiced today. We have already stated that we overlook the systemic connections to a great extent, and one method by means of which we can remedy this defect is the adoption of the system of records and follow-ups that exists in medicine. Can you imagine the remarkable data and discoveries we would obtain from such a system? We cannot of course force the individual practitioner so to arrange his practice as to develop that phase of our requirements, but it can readily be seen that a hospital, an institution, a clinic or a dispensary can offer these facilities, and surely they are most urgent.

There is one more problem that we must consider before we can conclude this discussion, that is, the economic question of our profession. It must be considered for two reasons, namely: (1) no profession can make any great progress without a sound economic foundation for the individuals of that profession, and (2) the economic question has another phase, which exists in the form of a hindrance to the further scientific development of our profession. The public is so uneducated to the exactness, the difficulty and necessary preparation for the practice of modern dentistry that it is unwilling in some cases and unable in others to pay properly for the required dental services. This condition is working a hardship on the individual dentist and is a great interference with professional progress.

Here again the hospitals, clinics, dispensaries and other dental institutions can play an important part in both supplying the needs of the poor individual and offering the opportunity for the dental practitioner to perfect himself in the modern application of scientific dentistry. At the same time it will educate the public to the idea of proper modern dentistry, and the economic benefits that the dentist will derive can readily be seen. It will facilitate his endeavors toward post-graduate training and at the same time will enlarge the scope of his practice and develop a more receptive patient for proper dental service that will be justly appreciated. Of course there are other personal and individual economic questions that cannot be discussed here at present. Suffice it to say that they are to be considered in the proper conduct of a practice.

In conclusion, we find that:

1. In order for dentistry to progress as a dignified specialty of medicine it is necessary to broaden the scope of the dental practitioner.
2. The solution of the problem involved in the decrease of the amount and number of dental and oral lesions demands a practical application of the above.
3. Our scientific development is working under a great hardship because of the present condition and viewpoints of specialization.

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The Value of Interproximal X-Ray Examination As An Aid In Oral Diagnosis

By FRANCIS SCOTT WEIR, D.M.D., New York, N. Y.

Intelligent oral examination and the rendering of accurate information to the patient regarding necessary dental treatment can be given only after a careful, comprehensive and detailed study of all conditions. It is definitely established that this information cannot be obtained by careful clinical diagnosis alone. A well-conducted practice of today recognizes the value of electrical vitality tests, transillumination, general x-rays and the interproximal x-ray study as essential parts of a complete diagnosis. In addition, if occlusion problems are involved, accurate study models mounted on an adjustable articulator are essential to determine necessary corrective procedures.

No intelligent operator depends upon any one phase of procedure, as that would lead to tooth-filling, and dentistry is striving toward better oral health and in so doing considers the function of all the teeth and not of one individual tooth. There is far too much attention given to one tooth without studying the approximating and opposing members. When dentists reach the point where they will insist on placing the entire oral cavity in a healthy and properly functioning condition, they will have advanced far in the field of future dentistry. No systematic advance in preventive dentistry can be reached until the restoring and maintaining of the oral cavity as a functioning unit are routine practice. This leads to a consideration of the subject of this paper, i.e., the value of the interproximal x-ray examination as an aid in oral diagnosis.

The beginning of caries interproximally, especially in posterior teeth, is difficult to determine by clinical examination unless wedges are placed to separate each suspected tooth. This leads to a long procedure that patient and operator hesitate to follow as routine practice. The interproximal or bite-wing film will disclose these small cavities between the teeth, and, even if it is not desirable to fill each one at the time it is discovered, it is known to be present and can be placed under careful observation and filled at any time the operator deems expedient. The interproximal examination shows also decay under fillings, pulp stones and overhanging margins of fillings (Fig. 1). These conditions are important in the elimination of periodontal disturbance.

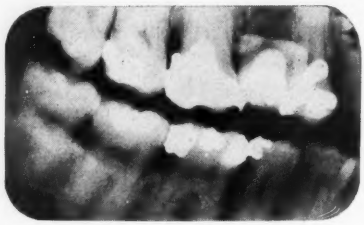

Fig. 1
Decay under distal filling in mandibular first molar.

The one point of extreme value is the all-important area of the osseous structure immediately below the gingival margin. Dr. Howard Jackson, of Detroit, has pointed out with convincing truth that the condition of the bone in the interproximal spaces is most important in determining the presence of infection. Whenever normal conditions are present, the contour of the osseous tissues in the interproximal spaces shows uniform penetration. However, irregular V-shaped interproximal spaces and irregular penetration indicate infiltration and the presence of infection, which is not eliminated even after the teeth are extracted. These conditions may all be determined by the interproximal examination, and the necessary procedure will indicate itself to the operator.

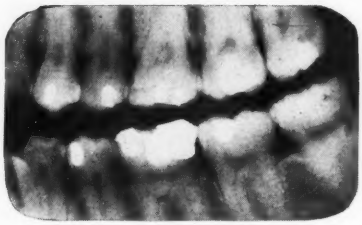

Fig. 2
Overlapping due to improper horizontal angulation.

Criticisms have been made of the interproximal examination, of which the principal one is the overlapping of teeth so that the contact point is obscure, as is shown in Fig. 2. This is the result of two things: first and foremost, improper horizontal angulation of the tube in taking the x-ray picture, and, second, the irregularity of the teeth themselves.

To correct the improper horizontal angulation, the ray must parallel the interproximal surface of the tooth in question. For example, when the bicuspids and molars are in normal alignment, they may all be filmed on one picture by paralleling the mesial surface of the maxillary first molar with the direction of the penetrating ray. The overlapping in normal cases is due to the attempt to pass the ray at right angles to the film. It is the mesial surface of any interproximal surface that is important, and not the film if it is placed normally in position. Naturally the vertical angle must be considered, otherwise the tooth will be foreshortened or elongated and details of the interproximal area will be obscure or distorted. The correct vertical angle is 5°.

When the teeth are irregular, two or more pictures are sometimes necessary.

The ease and simplicity with which a full mouth view may be obtained by making only five exposures is the decided advantage of the bite-wing film. This may readily be made a part of the patient's regular visit for prophylaxis and examination. In this manner beginning caries, caries under fillings, interproximal disturbance or any departure from the normal may be observed and, in connection with the other forms of diagnosis, this will indicate the procedure necessary to correct any of these conditions.

In Fig. 3, the maxillary arch shows definite infiltration of the interproximal osseous structure. This should be treated. There is also the beginning of caries under the filling in the second bicuspid and a large overhang to the

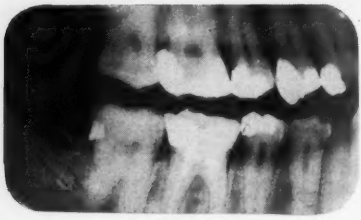

Fig. 3
The maxillary arch shows infiltration and infection in interproximal osseous tissue. The mandibular arch is almost normal.

filling in the distal of the first molar. In the mandibular arch there is little infiltration present, but the distal of the second molar shows an overhang of the filling with caries present. If this mouth is not cleared up, the infection will persist, and if artificial appliances are carried on the soft tissues, soreness and discomfort will continue and no permanent relief will be possible. The discovery and the elimination of this condition now will result in less destruction and greater comfort to the individual.

Fig. 4 shows an osseous structure that is nearly normal, but some infiltration is present and the case must be frequently observed. There is decay under the filling in the mandibular first molar. This is a more favorable case than the one shown in Fig. 3, but treatment, especially of the mandibular first molar, is essential to preserve against further infection.

These are some of the conditions disclosed by the interproximal x-ray examination that the writer has found of value in the study and correction of

Fig. 4
Decay under mandibular first molar. Osseous tissues nearly normal.

oral function. There is much more to be learned from a closer study of each case, but these few are well worth while to any one who will adopt this as an aid in oral diagnosis.

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General Anesthesia and Its Application In Oral Operations*

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A SUMMARY

Under normal conditions the tone of the muscles in the soft tissues maintains an open airway, but when there is complete relaxation from an anesthetic such as ether there is more or less of an obstruction. This does not occur as a rule during a short administration of nitrous oxid and oxygen.

The ordinary rate of respiration is from 16 to 20 per minute, but under ether it varies from 40 to 50. The rhythm should be regular, and when there is a disturbance in the rhythm it is a sign that the anesthesia is not going smoothly. The amplitude of the respiration, or the amount of air that is exchanged, is the most important factor. The exchange of approximately 500 c.c. is normal, but under ether anesthesia it may increase to almost double that amount. Consequently, if the airway is obstructed 50% and the rate and amplitude of the respiration are doubled, then there is immediate danger of cyanosis.

There are two kinds of respiration, external and internal. The former takes place because of the movements of the chest, the lifting of the ribs and the compression of the diaphragm. Internal respiration is the exchange of oxygen from the bronchi to the capillaries and the removal of carbon dioxide. The lungs are not a compact tissue, and if the absorbing surface was spread out in a single flat surface, it would be the equivalent of the inside of a balloon twenty feet in diameter.

For a short operation nitrous oxid and oxygen, ethyl chloride, or ethylene may be used. If, however, the operation is to last over twenty minutes, the safest anesthetic is ether. After-sickness from ether is not due to the agent itself, but is caused by a lack of oxygen. This was proved by the Rockefeller group in the Aztec Mountains. When the oxygen became reduced, the same symptoms appeared as develop after the administration of ether.

Ether may be administered in several ways for oral work. The oil-rectal method has been used extensively but is dangerous, for after the dose has been administered there is no certain control over the anesthesia. Practically all the ether must be eliminated by way of the lungs, and if there is an obstruction in the airway, an overdosage will result.

Another method is insufflation. The vapor is blown by a machine into the mouth or pharynx, or even into the lungs. The machine takes care of the inhalation; the patient must take care of the expiration.

The ideal method is to provide some means by which the whole of the airway may be made rigid and kept open constantly. In combination with the Jackson bronchoscope this has been

* Given before the Oral Surgery Section, First District Dental Society, New York, October 25, 1928.

accomplished. A tube is introduced under direct vision, and a small gauze pack is pushed down over the base of the tongue. Gauze is packed deeply into the posterior pharynx, and the trachea is sealed.

Some holes are punched in the top of an ordinary ether can, and a rubber tube is slipped over the opening for the cork and connected with the tracheal tube. A little ether is put in the can. The more the can is shaken, the more ether the patient gets. It is very simple and there is no danger of obstruction. In case of necessity oxygen may be administered from a tank through the same tube. The only difficulties are those of intubation and the presence of the tube in the mouth.

There is no reason why dentists should not learn to expose the larynx and by so doing dispose of the general anesthetic problem. It also provides the means of satisfactorily carrying out artificial respiration. It can be done only under complete relaxation, which is always present when its use is indicated. As soon as the masseter muscles relax the head is extended and slightly rotated, which straightens the curved airway. Everything above the laryngoscope is soft tissues. All that is necessary is to lift them up and the glottis is exposed.

The ordinary methods of artificial respiration provide for external respiration only. Intubation provides for internal respiration. A simple little machine is all that is necessary to supply CO_2 and oxygen. This is forced in under pressure, and the expiration is taken care of by the natural collapse of the chest walls.

In the resuscitation of an asphyxiated person the color clears in two or three minutes simply from internal respiration. The respiration then becomes very rapid, which is never seen in other methods of artificial respiration for the reason that there is never a free airway.

This technic is entirely practical and may be acquired by any one. It provides a satisfactory method for general anesthesia and an ideal method for resuscitation.

Oral Surgery In Practice

By JAMES L. ZEMSKY, D.D.S., New York, N. Y.
Attending Surgeon, Department of Oral Surgery; Chief of Clinic and Director, Surgical Periodontia Department, Midtown Hospital, New York

(Continued from January)

PLASTIC OPERATION FOR CASES OF ADVANCED PYORRHEA

(SURGICAL PERIODONTIA)

¶316. Advanced cases of pyorrhea are hopeless as a rule when the alveolus and its supporting bone have been destroyed to such an extent that more than two-thirds of the roots of the teeth are exposed. In these cases extraction of teeth is usually the only satisfactory therapeutic measure. (See Figs. 354-365.)

Fig. 354

Fig. 355

Fig. 356

Figs. 354-356

ROENTGENOLOGY OF PERIODONTOCLASIA

Roentgenograms of maxillary premolars, canines and central and lateral incisors showing extensive destruction of the alveolar process. The anterior teeth give a negative prognosis. (See ¶316, 321.)

Fig. 357

Figs. 357-358

Roentgenograms of maxillary molars showing extensive destruction of the alveolar process involving the interradicular septum (trifurcation of the roots). Prognosis of the premolars is good, while that of the molars is negative. (See ¶316, 321-322.)

Fig. 358

Fig. 359

Fig. 360.

Figs. 359-360

Roentgenograms of mandibular canines and central and lateral incisors revealing marked destruction of the alveolar process. Prognosis of such teeth is unfavorable. (See ¶316, 321.)

Fig. 362.

Figs. 361-362

Roentgenograms of mandibular molars and premolars revealing extensive destruction of alveolar bone. Note the involvement of the interradicular septum (bifurcation of the roots). Prognosis of the premolars is good. Molars give a negative prognosis. (See ¶316, 321-322.)

Fig. 363

Roentgenogram showing extensive destruction of bone on the maxillary canine and lateral incisor, of pyorrhetic origin. Teeth of this type give a bad prognosis and should be extracted. (See ¶316, 319, 321-322.)

Fig. 361

Fig. 364

Fig. 365

Figs. 364-365

Roentgenograms of mandibular premolars showing extensive destruction of the investing bone, the disease extending beyond the apical region. Such teeth are hopeless. They should be extracted and the surrounding necrotic structure thoroughly curetted. (See ¶316, 319, 321-322.)

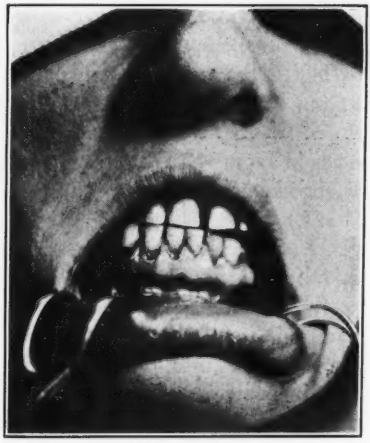

Fig. 366

SURGICAL PERIODONTIA

Photograph of a patient presenting the type of case that is most successfully treated by the surgical method. (See ¶317-318, 322.)

¶317. Extensive destruction of the alveolus and its supporting bone is accompanied by the formation of large masses of granulomatous tissue, which fill the space originally occupied by the osseous structure. Thorough removal of this pathological tissue is a rather simple task when surgery is employed, for such a procedure offers both an unobstructed view and an easy access to the involved tissues, thus making the removal of the affected hard and soft structures very easy. (See Figs. 366-369.)

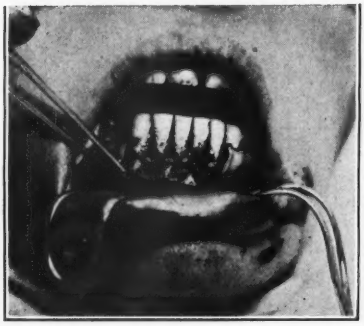

Fig. 367

Photograph showing laying back of the muco-periosteal flap, thereby exposing the underlying alveolar bone and the denuded root surfaces. (See ¶317-318, 322.)

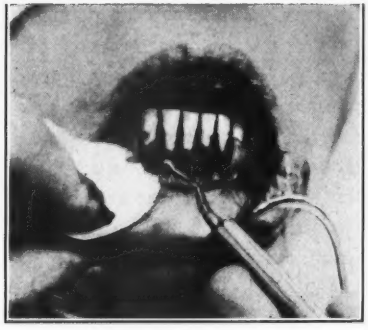

Fig. 368

Photograph showing curetting of the granulomatous tissues from the underlying bony structures and the inner surface of the flaps. (See ¶317-318, 322.)

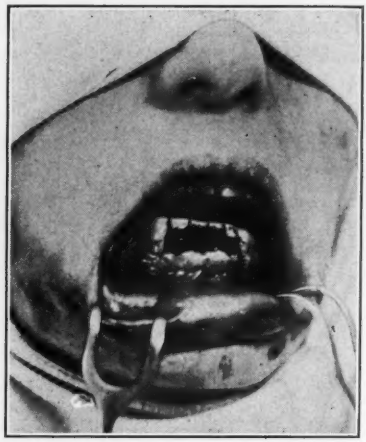

Fig. 369

Photograph showing the flaps coaptated and sutured and a strip of iodoform gauze packed into the interstitial spaces. (See ¶317-318, 322, 325, 327, 330.)

¶318. Success of the radical surgical method of treating pyorrhea depends in a great measure upon the operator's technic. It is essential that all incisions be made deliberately, for "hashing" of the tissues is usually followed by sloughing and formation of bad scars. An important point to be borne in mind is that removal of the structures should be limited only to those affected by the disease. Another important point to be remembered is that traumatization of tissues must be avoided, therefore great care should be exercised not to damage the structures during operation.

¶319. When pyorrhetic teeth are very loose and require support, silk ligatures can be used to advantage. If this method of splinting the teeth seems insufficient, the teeth should better be extracted, for otherwise failure will usually be the result. (See Figs. 355, 360, 363-365.)

¶320. It is advisable to resort to the obliteration of pyorrhea pockets through the excision of the overlying structure and curetting of the infected and disintegrated tissues only after all possible etiological factors have been either completely eliminated or corrected.

¶321. A very careful roentgenographic examination of the teeth for the purpose of making a correct diagnosis of periodontal disease is absolutely unavoidable. (See Figs. 354-365.)

¶322. Posterior teeth in which the intradental septum (bifurcation and trifurcation) also is involved give a negative prognosis, and this holds true also in the case of single-rooted teeth that can be easily moved in the direction of their long axis. (See first molars in Figs. 357-358, lateral in Fig. 363 and the affected premolars in Figs. 364-365.)

¶323. While the radical surgical method of treating pyorrhea is excellent for advanced types of periodontoclasia, it is not an absolutely necessary procedure for less advanced cases, which in many instances prove readily amenable to simple scaling, the so-called *root surgery*.

¶324. Not infrequently advantage may be taken of the flap operation for root resection, when such a procedure is advisable.

¶325. Packing the interdental spaces with a strip of iodoform gauze is very helpful as a last step in surgical periodontia. This protects the wound from reinfection, stimulates tissue regeneration and lessens the patient's discomfort, which is due to temporary sensi-

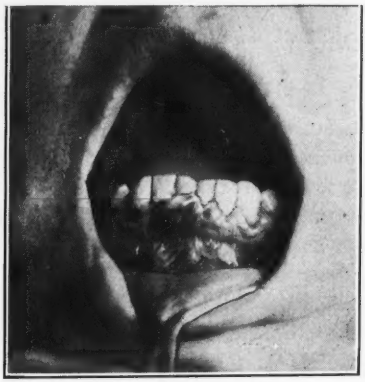

Fig. 370

GINGIVAL PROLIFERATION

Photograph of a patient, 37 years old, presenting proliferation of the gingivae. It shows a markedly overgrown interdental papilla covering the greater portion of the crown of the right mandibular central incisor and effecting the two adjacent teeth. It is of a dark purplish red color and of a soft, spongy consistency. The treatment of such a case should be radical surgical removal of the entire hypertrophied mass. (See ¶330.)

tiveness of exposed root surfaces. (See Fig. 369.)

¶326. Good coaptation of the flap is essential for the success of plastic operations in cases of pyorrhea, hence patience and skill are two necessary requirements in this method of treatment.

¶327. The number of sutures to be used in any particular case of surgical pyorrhea is determined by two conditions: (1) mobility of the flap, and (2) bleeding. Sometimes a blood clot holds the flap in position, and suturing becomes almost unnecessary. On the other hand, where the flap is mobile, a number of sutures may be necessary. (See Fig. 369.)

¶328. A painstaking mouth hygiene is as conducive to healing in cases of surgical periodontia as in all other surgical cases. Its importance should therefore be pointed out to the patient.

¶329. In cases of advanced pyorrhea the plastic operation is a method of treatment which depends in a great measure on a correct diagnosis and the skill of the operator and on the patient's recuperating power and cooperation. In view of these conditions, failures are possible here as in all other types of treatment. Therefore surgical periodontia must be considered not as

Fig. 371

Photograph of the gingiva of a patient, 29 years of age. It shows hypertrophy of the interdental papillae between the maxillary central incisors and also between the right central and lateral incisors. Often scaling of root surfaces is followed by a return of the hypertrophy of the papillae to normal, but occasionally surgical removal is required. (See ¶330.)

a panacea for periodontal diseases but merely as an effective and expedient procedure.

¶330. All hypertrophy of the gingivae can be effectively treated by surgical excision of the gum followed by packing the interstices with strips of iodoform gauze. (See Figs. 369-371.)

355 East 149th Street.

(To be continued)

The Truth About Rubber Dentures

By SAMUEL SHERMAN, New York, N. Y.

Since J. B. Gariot, in 1805, invented an instrument for reproducing mandibular and masticatory movements of the jaw, some of the best minds in the dental profession have been devoted to the perfection of this instrument, the articulator. In a great measure they have succeeded and the articulators of today more readily facilitate the construction of restorations, tending to re-establish the functional duty of mastication, speech, etc.

No articulator, however excellent it may be, can of itself insure success in prosthesis. Such an instrument can do only what the operator is capable of making it do. Yet the modern instrument does enable one, by intelligent use, to articulate opposing teeth to a closer approximation to the functional requirements.

If teeth are articulated accurately according to the best principles, there yet remains a great possibility that the patient will not have a satisfactory masticatory apparatus. If the finished denture does not retain the original articulation, then of what use is the painstaking work involved in securing perfect right and left lateral, protrusive and retrusive bites? A perfect wax denture is as useless as an imperfect one of rubber. The patient can wear neither.

It is important that the teeth be adequately supported on bases that will receive, resist and dissipate the resistance offered by food between the teeth. It is essential that perfect contact of surfaces be obtained between the mucous membrane and the bases, since the closer the adaptation the greater the atmospheric pressure. The greatest adaptation offers the greatest resistance to a displacing force.

Now let us consider of what material these bases shall be constructed. We enter the field as the champions of a material which, when properly handled, is as elastic as whalebone, sufficiently dense, smooth and durable, can be molded perfectly to fit any mouth, is sanitary, will not injure the mucous membrane, and is easily repaired without distortion. The lightest of all substances used in denture construction, its specific gravity is about 1.115, half the weight of aluminum. This material is rubber.

Twenty years of experience in handling rubber has taught us that, when improperly manipulated, it becomes porous, brittle and saturated with decomposing secretions that are very offensive. The finest Para gum is used in combination with sulphur, since it is the chemical action between the two substances, under heat, that produces vulcanite of a dull black appearance. Vermilion (mercuric sulphide changed to a metallic powder) is the coloring agent in almost all good, colored rubbers. White oxide, an inert substance to control expansion and contraction, is added. The more coloring and oxides that are added to raw rubber, the less strength it has. In certain proportions the balance is most suitable for the intended use.

The following table shows the

amount of coloring in the various rubbers:

	Rubber	*Pigment*
Dark Elastic or Natural Base	75%	25%
Brown	55%	45%
Maroon	45%	55%
Red or Orange	40%	60%
Pink	25%	75%

The fact that there are so many different shades of base rubber is hard to understand, for it is never seen when the denture is in the mouth. Furthermore, if the teeth are properly selected and set up, pink rubber, being very weak, need never be used unless the patient has a very short lip.

We have developed a technic for reproducing the wax try-in that is so exact and so infallible that it is necessary to try it only once to be convinced that a vulcanite denture so constructed will give the patient the greatest amount of service and satisfaction.

After the teeth are set up and tried in the mouth and everything is satisfactory, a matrix is made of the upper teeth. With a plaster saw or disk, cut away the palate of the upper set-up. Remove the upper model from the articulator. Burnish and swage soft metal No. 7 up to the crest of the ridge so that all of the rugae and fine details of the palate are reproduced with photographic exactness. Return the teeth to the model and correct their position by aid of the matrix. Carve the lingual of the teeth in wax to reproduce the natural tooth effect.

As the metal used for this base is of 24-25 gauge, it is almost impossible to polish so thin a palate and the fine reproduction of the natural rugae and other palatal details. We must remove the denture from the flask already polished. This result is obtained in the following manner:

Fill the bottom of an old flask (so that the plaster may be later hammered out) with plaster of the consistency of thick cream. Use salt and bring it to a pyramidal shape, put some of the plaster from the same mix into the palate of the set-up, reverse the set-up with the palate down and sink it into the flask. While the plaster is still soft, trim away the surplus from the buccal and labial of the teeth so that there are no undercuts. Tap the sides of the flask to jar the set-up out of the flask. When the set-up is removed, you have a perfect reproduction of the palate. Soap the entire surface, make another mix of plaster, rinse off the soap and then pour the second half as when investing a case for packing. In about five minutes pry the flask open, and you have a plaster die and counter-die. Place a piece of soft metal No. 4 (about 38 gauge) between the two halves and put it into a spring press. Compress the two halves until they meet. We have now a metal cover for the palate. Attach this cover to the set-up and invest it in a large flask whose parts fit perfectly together and cannot shift nor rock. After the case is invested in the usual manner and the plaster is set, heat the flask to remove the wax and the No. 7 palate. The No. 4 cover is held in place by the teeth.

When packing the mold, the rubber, instruments and hands must be clean. Do not overheat the flask or the rubber, as the latter must be compressed densely. Small pieces are used only for the interstitial spaces. The rest of the denture should be packed with five pieces. When it seems that enough rubber has been used, add two strips,

about ½ inch square, along the bicuspid and molar region to allow for condensation and to overcome any possible shrinkage during vulcanization.

Neither grooves nor waste gates should be cut, as the surplus rubber will run out while the flask is being

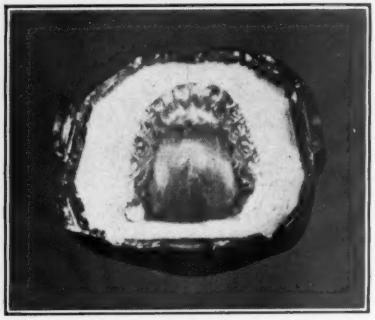

Fig. 1—Showing denture invested in flask and tin-foiled.

pressed. Nor must there be any allowance for compression or shrinkage. The rubber must be confined. The model side of the flask is covered with 1/1000 tin-foil and soaped to make removal easy.

When the flask is closed to test the amount of rubber, the pressure must be exerted evenly, uniformly and slowly. This cannot be done readily with the ordinary flask press, but a press has been designed with a fine pipe thread for center screw, a large ball-bearing closing device suspended from the screw, and a double bottom supported by springs, which exert the necessary pressure evenly, uniformly and slowly.

The springs are compressed when the flask is closed, and the press and flask are placed in boiling water for about four minutes. As the rubber softens, the springs close the flask completely, evenly and automatically. This prevents the teeth from being driven into the plaster or the walls of the counter breaking away and makes sure that the rubber is compressed densely.

If a bolted flask or rigid clamp is used, it is impossible to get good results. Spring pressure must be used to close the flask, and the mold must contain an excess of 10% to 20% of rubber when vulcanizing commences. Therefore the flask need not be completely closed at this time. Its closing must be gradually effected by spring pressure after the vulcanizing has progressed far enough to produce a partial shrinkage of the rubber. Expansion ceases and shrinkage commences after the temperature has reached 255°.

Unless some such spring pressure is applied while the denture is being vulcanized, the rubber shrinks and pulls away from the teeth, forming spaces

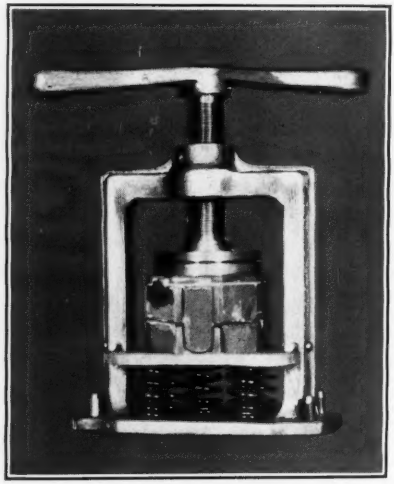

Fig. 2—Showing flask closed in Spring Flask Press.

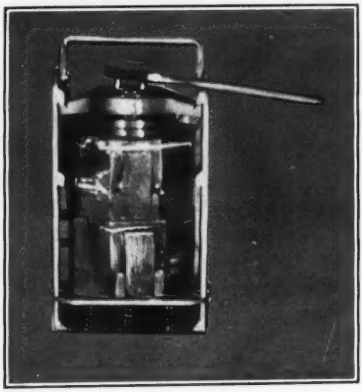

Fig. 3—Showing two flasks in Adjustable Spring Flask Clamp ready for vulcanizing.

between the teeth and the rubber. These are filled with saliva, mucin and slimy food debris, and the odor is very offensive. This deficiency due to the shrinkage of the rubber is often as much as 5%. Spring pressure overcomes this defect. A flask compress has been designed with a ball-bearing closing device and a spring-supported bottom which closes the flask automatically, evenly and uniformly while the denture is being vulcanized.

The following rules for vulcanization are the result of a long and diligent investigation:

(1) Take 30 minutes to run up to 290°.
30 minutes at 290°.
60 minutes at 300°.
60 minutes at 310°.
15 minutes at 325°.

(2) Not more than 6 oz. of water should be used in the vulcanizer.

(3) The same water should not be used twice.

(4) When the gas is lighted, the steam valve should be left open for a couple of minutes to permit the steam to escape.

(5) When the case is vulcanized, the steam is not permitted to escape immediately, but it is allowed to cool by itself to room temperature, since rapid cooling will result in a warped denture. Cool for an hour.

The painstaking practitioner need fear no longer that his perfect bite will not be reproduced exactly, and that his careful study of articulation will be carelessly set at nought. The above-described technic, if intelligently followed, will reproduce the original bite in the finished denture, and the denture will come out of the flask already polished.

The road to perfect rubber dentures is now open. We have the technic of bite registration and articulation. We know what materials to use. We have satisfactory apparatus. We have adequate laboratory methods.

It now remains for the technician to absorb the information herein set forth and use that wonderful material—rubber—more intelligently and with a greater interest. Unless he does this, the desired results cannot be obtained.

1 Union Square.

The Benefits of Organized Dentistry*

By WILLIAM JOHNSON, D.D.S., Bisbee, Arizona
President of the Southwestern Dental Society

In addressing you today on the subject of organized dentistry and the benefits of dental societies I believe I am bringing to your attention a phase of dentistry little thought about, but one to which I think we in the Southwest should begin to give serious consideration. The professional developments and achievements of organized dentistry have come to most of us so easily and with so little effort on our part that we have come to take them as a matter of course, not realizing, perhaps, how little progress would have been possible without some cooperation and organization.

The realization that to advance dentistry from a mere trade to a high professional standard would require cooperation inspired some of the leaders among the dentists of the early part of the last century to organize. We find in 1839-1840 the establishment of the first dental college, the Baltimore College of Dental Surgery, by Drs. Horace H. Hayden and Chapin A. Harris. During this same year the American Society of Dental Surgeons was organized and the American Journal of Dental Science was established. In reviewing the history of dental organizations we find it one of progress from that day to this. State societies were formed in most of the states, finally resulting in a parent organization, the American Dental Association, in 1859. In 1897 another national organization, the Southern Dental Association, was amalgamated with the American Dental Association. This brought all state societies in the United States under one parent organization, the National Dental Association.

Dr. Thomas Fillebrown, the first President of the National Dental Association, had this to say about organization: "Organization is essential to the success of any movement in which the combined effort of several individuals is desired. It converts the irresponsible mob into a disciplined and responsible army. It is the fly-wheel of progress, which gives balance to combined effort, brings up and pushes forward the laggard of conservatism, restrains the erratic flight of the too exuberant enthusiasm of the reformer, gives steadiness to action, and makes advancement sure. The value of the professional organization today is not simply in bringing together the great, the good and the wise to exchange congratulations on what the few know more than the many, but in order that the many may meet the few, and that knowledge, culture and refinement and a true professional spirit may be more widely diffused and better appreciated."

Since 1897 the National Dental Association has continued to progress, perfecting the details of a great organization, until today it represents upward of 35,000 members, publishes its own journal, and maintains a dental library,

* Read before the meeting of the Southwestern Dental Society, October 28, 1928.

a research commission, a relief fund, and a propaganda department under the Council of Mouth Hygiene and Public Instruction. In 1922 the name was again changed to the American Dental Association. The components of the American Dental Association are the state societies. These in turn are composed of county, city and district societies and study clubs.

Organizations of dentists such as these are conducted by dentists primarily to broaden their views and increase their knowledge, for dentistry as a profession is an accredited agency of public health service. Unquestionably the most vital factor in the advancement of dentistry to an actual science has been the general realization of the broad principles of cooperation, helpfulness and mutual exchange of knowledge and experience as embodied in the motives and objectives of the organized dental society. It has elevated the education requirements of the dentist from the most rudimentary to the equal of training in medicine. It was only through the efforts of organized dentistry that our profession secured equal recognition with medicine in the Army and Navy.

The chief benefit of the dental society to the individual is so to foster his scientific and ethical improvement as to enable him to serve humanity better. This is probably better accomplished through constructive programs in which the members themselves largely participate. A society, to be of the most value, must be one that promotes those plans which tend to induce and compel the largest number of its members to study, think, write and discuss those things which go to make up every problem confronting the profession. The larger the society, the less opportunity there is to develop the mass of its membership; conversely, the smaller the society, the greater the opportunity for individual development. Here is where the study club or small district society might be said to be the foundation of organized dentistry. In these small groups, meeting one night a month during the year, is laid the foundation of future work by the individual members as well as by that group as a whole. It develops the habit of study.

The dental society is a postgraduate school which keeps you fit for the increasing responsibilities which every conscientious dentist must assume toward his community. The contacts made in a dental society keep a fellow on his toes. He cannot meet his professional friends monthly, quarterly, or even annually without taking inventory of himself through comparison with the accomplishments of his friends. Thus membership becomes a constant urge for improvement.

Not only does the dentist himself profit through the dental societies, but these organizations are responsible for many benefits to the laity. Many advancements in refinement of dental procedure are due to the results being derived from the promotion of research work by the American Dental Association. The fostering of this phase of dentistry probably has done more than anything to establish dentistry upon a plane where it is recognized and accepted as an important branch of the healing art. One of the first things accomplished by organized dentistry was the establishment of state boards

of registration, which have in large measure served to protect the public against promiscuous dentistry and all its evils. There is one obligation that organized dentistry owes to the public, which, I believe, has been too much neglected, that is, the duty of keeping the public informed as to what good dentistry means and also as to the limitations of the profession. There is great need of a comprehensible educational program for the laity, through the press, under the direction of society officers. While it is true that definite lines cannot be drawn on some questions, the public could be given general information sufficient to serve as a guide in the application of that knowledge to conditions within their own mouths.

To some of you it may seem that most of the benefits just outlined are not attainable here in the Southwest. While it is true that we are handicapped through great distances, small communities and comparatively few men, I still believe we can have practically all the advantages dentists in larger communities have. Each state represented in our Southwestern Dental Society has its own state society. Through each individual state society it is possible for every man in that state to participate in his own state meeting. By combining our efforts as we do through the Southwestern Dental Society we are able to have a second program during the year. This gives every man in the Southwest a chance twice a year to meet his fellow dentists and to see and hear something new in his profession. Due to small communities, the study club plan is difficult and for the most part impracticable. Still, we have four such clubs, one in El Paso, one in Albuquerque, one in Phoenix and one in Tucson. Fortunately they are so distributed that it is possible for any one, should he put forth a little effort or possibly make some sacrifice, to attend some meetings of these organizations.

There are approximately two hundred ethical dentists in Arizona, New Mexico and West Texas. Our problem is to interest these men in their local, state and district societies. To accomplish this is to raise the standard of dentistry in these communities. One of the big advantages of these societies is to get men together and get them acquainted. After a while they will come to these conventions to see those whom they know, whether or not they see or hear anything else. This soon means the establishment of good fellowship among men in the communities throughout the district. When that is accomplished, there will be no difficulty in getting cooperation or handling any other problems that may come up.

In closing, I should like to quote the following from an editorial in *The Dental Cosmos* for August, 1928: "The benefits to all of us individually from organized dentistry are too numerous to mention, but the principal and most tangible ones are those that have already come to us through the legal, educational, professional and social status we enjoy and those to be derived from keeping abreast of the advancement and progress in all phases of dental practice through the dental society, for it is here that is recorded all dental progress of whatever character."

William Henry Potter

1856-1928

William Henry Potter was born in Boston and was prepared for college at the Roxbury Latin School. He received the degree of Bachelor of Arts from Harvard University in 1878 and the degree of Doctor of Dental Medicine in 1885. In June, 1927, the honorary degree of Master of Arts was conferred upon him by Harvard University. In awarding this honorary degree President Lowell said:

> William Henry Potter, Master of Arts: More than thirty years a teacher in the Dental School. In 1914 he joined the first American Hospital in France, and later served in our army with marked distinction.

His record of service to the Harvard Dental School is as follows:

1887-1888, Demonstrator of Operative Dentistry.
1890-1896, Clinical Lecturer in Operative Dentistry.
1896-1900, Lecturer in Operative Dentistry.
1900-1904, Assistant Professor of Operative Dentistry.
1904-1927, Professor of Operative Dentistry.
1927, Emeritus Professor.
1899 until his death, a member of the Administrative Board.

Dr. Potter was a Past President of the American Academy of Dental Science and of the Harvard Dental Alumni Association, and the first President of the Dental Hygiene Council of Massachusetts. He was a member of the Harvard Odontological Society and of the Massachusetts Dental Society and an associate member of the New York Institute of Stomatology. At the time of his death he was a member of the Fédèration Dentaire Internationale and was always active in the affairs of the Fédèration.

He was in London when the War broke out and offered his services immediately to the British and French Governments in turn and joined the staff of the American Ambulance in Neuilly, France, where he served some months. He was commissioned a Lieutenant in the Dental Corps on May 17, 1917, and was discharged on April 30, 1919, as a Lieutenant Colonel. The French Government conferred on him in 1927 the decoration of Chevalier of the Legion of Honor in recognition of his voluntary services to that country before the United States entered the War.

The life of Dr. Potter was an exemplification of unselfish endeavor. He had a passion for human service and in this service he knew no distinction in race, creed or social position. In his professional relations he was animated by a liberal spirit, which recognized true worth wherever it was found. Justly proud of his own scholastic relations and loyal to the university of his choice, he was nevertheless interested in all institutions of learning and the champion of all measures which he believed to be in line with professional progress.

He was sincere and direct in all his

dealings with men and affairs and a "Valiant for Truth" in matters relating to unsettled problems, cheerfully setting aside personal opinion in the light of new truth. His high scholastic attainments and broad culture gave him powers of discernment and an appreciation of the beautiful in art, literature and music.

In his death the dental profession loses a man of high ideals and unusual ability.

The members of the American Academy of Dental Science will miss his presence at its meetings. Therefore be it

Resolved, That the Academy express its deep sense of loss at the death of its long-time member, Dr. William Henry Potter, and that his family be sent its deepest sympathy.

ROBERT TUCKER MOFFATT,
WILLIAM RICE,
LEROY M. S. MINER, *Chairman.*

Resolution Adopted by the Pathodontia Section of the First District Dental Society, New York

DECEMBER 17, 1928

Whereas, The officers and members of the Pathodontia Section of the First District Dental Society recognize the importance of the use of the x-ray as an aid in diagnosis and during the treatment of pulpless teeth; and

Whereas, Certain practitioners ignore this procedure; and

Whereas, Such practice is considered contrary to the best interests of the patient; be it therefore

Resolved, That such procedure be considered questionable practice in this branch of dentistry; and be it further

Resolved, That this resolution be entered upon the minutes of this Section, and a copy be forwarded to the professional journals for publication and also inserted in an early issue of the First District Dental Society Bulletin.

Generous Donation to the Secretary of Public Instruction of Cuba by Mr. A. Recio

The Governor of Oriente Province, Mr. Barceló, also helps in establishing this important service for the benefit of the poor children in this province.

A conference was recently held by the Secretary of Public Instruction, General Alemán, Mr. Arquimedes Recio, and Dr. Gonzalo Chirino, Head of the School Dental Service, when Mr. Recio donated to the department one of the most up-to-date and complete dental offices, consisting of chair, electrical apparatus, surgical instruments and other implements necessary for equipping a complete dental office, to be used for the public school children. General Alemán expressed his thanks to Mr. Recio for the donation, which embodies in its ideals enlargement and efficiency in the dental service for the benefit of the children, as he has already established a similar service in Havana and now wishes to do all in his power, with the help of Dr. Francisco María Fernández, Secretary of Public Health and a patron of dental hygiene, to extend it throughout the island.

The Secretary has authorized Mr. Vidal Lastre, Superintendent of Schools in the Province of Oriente, to receive and turn over this equipment to the *Patronato Escolar* of Santiago de Cuba. This office will be opened on January 1, 1929, by General Alemán and the other authorities of the Province of Oriente.

In another interview with Mr. Arquimedes Recio and Dr. Gonzalo Chirino Mr. Barcelo, Governor of the Province of Oriente, promised to help along the work of General Alemán by appointing a surgeon dentist and to provide for all expenses incurred in the maintenance of said service, which is considered so important for the children of the province. Both Dr. Chirino and Mr. Recio expressed their thanks, being very much pleased with the cooperation and kindness of the popular and gentlemanly Governor. — *The Excelsior,* Havana, Cuba.

An Honor For Dr. Hyatt

The many friends of Dr. Thaddeus P. Hyatt, who has for years been in charge of the Dental Clinic of the Metropolitan Life Insurance Company and from that position has furnished a large amount of very valuable information to the profession, will be glad to learn that he has been made an Assistant Medical Director of the Company.

This may be construed as an honor for dentistry as well as for Dr. Hyatt.

DIGESTS

DENTAL FINDINGS IN OCULAR LESIONS

By Louis M. Crittenden, D.D.S.

In lesions of the uveal tract of the eye the chief etiologic factor is focal infection, the majority of which comes from the mouth and tonsils. Pulpless teeth are the cause of most of the infection within the dental tract, and since examination demonstrates that the majority of these teeth have definite periapical destruction, then a careful report of the dental conditions should be provided in cases where there are lesions of the uveal tract, and all pulpless and hopelessly diseased teeth should be removed.—*The Journal of the American Dental Association,* December, 1928.

MEANS OF MINIMIZING SHIFTING OF FULL DENTURE BASES

By L. G. Jordan, D.D.S.

"Essentials to stability in dentures are:

"1. The preparation and the utilization of the largest permissible supporting area afforded by the tissues.

"2. An appropriate reproduction of these areas in compliance with future requirements.

"3. The design and construction of well adapted denture bases and superstructures.

"4. The selection or the production of masticatory surfaces, tooth forms and tooth arrangements most appropriate for the anatomic and esthetic requirements of the patient.

"5. The most favorable allocation of the masticatory surfaces.

"6. Masticatory surface formation in conformity with the dictates of the laws of articulation."—*The Journal of the American Dental Association,* December, 1928.

ELECTROLYTIC MEDICATION

By Lester R. Cahn, D.D.S.

The author comes to the conclusion that the electric current is not essential to the process of ionization, and that ionization precedes electrolysis. Solutions can permeate the tissues without the aid of electricity.

Electrolysis may aid and hasten the penetration of drugs, yet this penetration is not deep. The electric current has a caustic action and aids in tissue destruction, thus increasing phagocytosis and absorption.

Clinical reports show that the results obtained without the use of electrolytic medication are as good as when this method is used. Its use is more or less a matter of personal inclination, but there is no convincing proof that it possesses indispensable efficiency as a therapeutic agency. — *The Dental Cosmos,* December, 1928.

Foreign Dental Literature

NEUROTROPHIC SYNDROME DUE TO DENTAL DISEASE

By Corrado D'Alise, Naples, Italy

The author presents a case in which an indolent, chronic, pericementitic left mandibular molar without any apparent suppuration was the cause of an alopecia in the anterior left mandibular region of the face and of a left retro-auricular herpes and was accompanied by neurasthenia in an arthritic patient who was mentally exhausted. The extraction of this molar relieved the alopecia and the herpes.

D'Alise states that the neurasthenia was caused by the arthritis and exhaustion. He does not mention the existing foci as an etiological cause of the arthritic state. The patient had suffered previously from cholecystitis with its concomitant jaundice and had had an attack of neurasthenia. After appropriate treatment the disease of the liver was cured and the patient increased in weight, but the neurasthenia and insomnia continued, and then the symptoms of alopecia and herpes appeared.

The author lays special stress on the general examination of the patient, especially his oral conditions, as these physio-pathologic lesions can be produced through the anatomo-physiological relations between the gingivo-dental nervous system and its anastomosis with the peripheric innervations of the face, head and neck nerves.— *Bolletino della Regia Accademia di Medicina e Chirurgia,* Naples, 1928.

TROPHIC DISTURBANCES OF DENTAL ORIGIN

By Ciro Durante y Avellanal, Buenos Aires

A patient, twenty-four years of age, had had malaria at twelve. In February, 1927, the patient noticed a white spot on the gum in the region of the left mandibular first bicuspid, lingually. He had no pain. A few days after its appearance he went to a dentist, then to different dentists, hospitals,

clinics, etc. The different diagnoses made were syphilis, tuberculosis, mycosis, tumor, etc. He was submitted to all kinds of treatment, including cauterization with nitrate of silver and the electrocautery, intravenous and submucous injections, etc., under which treatments the lesion progressed in radius and depth until the roots of the bicuspids were only partly covered by the mucous membrane and the maxilla was laid bare, although the bone showed no lesion at all.

The first bicuspid was extracted and everything healed up well, but eight days after the same phenomenon reappeared at the site of the first molar. There was an involvement of the lymphatic glands in the submaxillary region. Laboratory examinations: Wassermann negative, sputum negative. Bacteriological examinations: large quantity of cocci, and Gram negative and positive bacilli; no Koch bacilli. Roentgenogram examinations: nothing in particular; bone healthy. The third molar had not erupted but showed no particular sign, and owing to the age of the patient the author attributed no importance to it. The second bicuspid and the first molar were extracted, a piece of gum resected, and an anatomo-pathological examination made and diagnosed as ulcero-necrotic stomatitis of unknown origin.

As the patient made no improvement under this operation, a new roentgenogram was taken, this time at a better angle, and the third molar was found to be placed horizontally and impinging upon the inferior dental canal and upon the inferior dental nerve. The third molar was extracted. The bone surrounding it was observed to be fungous and softened and all the diseased portion was resected and curetted. After being washed out with normal physiological solution, which treatment was continued for eight days, the wound of the operated region healed up and thirty days later the whole mucosa was healthy. A diagnosis *a posteriori* showed a trophic disturbance due to impingement upon the inferior dental nerve through defective evolution of the third molar.—*Revista Dental,* Buenos Aires, 1928.

SEPTICEMIAS AND ENDOCARDITIS OF ORAL OR DENTAL ORIGIN

By Maurice de Fleury, Paris, France

Recently the oral and dental causes of general septicemias and of diseases of more or less important organs such as the stomach, heart, lungs, etc., have been much discussed. The permanent presence of numerous virulent microorganisms of different varieties in the oral cavity of the healthy individual is well known. Owing to this fact great importance is given in the United States to oral hygiene propaganda, including the care of the teeth.

These oral complications are not a new problem, for in France at the beginning of the last century Petit and Cassagnac used the term *cachexie*

buccale to denote the infectious states of dental caries and those in fractures of the maxilla or mandible, when antisepsis was not yet known. In 1885 Richet presented the term *putrid intoxication* for the lesions he observed after surgical interventions in the oral cavity, and Tellier refers to a case of urinary infection of oral origin.

Regarding the heart, the author mentions cases of acute infection of the heart valves and of malignant endocarditis, where the blood examinations showed the presence of streptococci in the form of chains more or less wound up, this streptococcus being constantly present in dental foci. He mentions also a case of anemia.

He pleads for the oral examination of patient suffering from acute endocarditis or of those with a chronic and prolonged case. The route of communication and contamination is the blood stream, and the action of mastication has a great deal to do with forcing the putrid contents of the diseased teeth into the system.

As therapeutic measures he advises the use of autovaccines made from the principal isolated germs obtained from pus from the gums, which should be injected into the gums at the site of the infection or into the alveolo-dental articulation. The dose at the beginning should be one drop, to be increased progressively to two, three or even six drops. — *Revista Odontologica Brasileira,* São Paulo, Brazil, 1928.

A DOUBLE ISSUE OF AN INFLAMMATION OF THE ANTRUM—AN ADENOLYMPHATIC GLAND INFLAMMATION OF THE GENIAL REGION

By P. Jaques, Nancy, France

The author presents a case of a young man of lymphatic constitution who, after a bad cold, complained of a pain in the cheek with hyperesthesia of the whole region. The teeth were normal with no periostitis nor foci, although gingivitis was observed which affected the side where the pain was located. The mucous membrane of the nose was affected, giving rise to a copious coryza. The diagnosis was one of rhinitis, which was the cause of an adenolymphatic inflammation of the antrum.

The treatment employed was swabbing the mucosa with a solution of nitrate of silver and applying warm poultices on which an autovaccine was smeared.—*La Revue de Stomatologie,* Paris, 1927.

IONIZATION IN THE TREATMENT OF SEPTIC TEETH

By Alfredo Osorio, Montevideo, Uruguay

The septic infection of teeth is not limited to the root canals and the surrounding tissues of the root—pericementum, osseous tissues, etc.—but the

penetration of the microorganisms and of septic matter into the root proper —dentin, cementum and pericementum —through the canaliculi, as well as the ramifications of the canal proper, have to be taken into account. The author shows in a roentgenogram a case with four of these accessory canals visible to the naked eye, being so large as to allow the passage of the filling material when it was introduced into the principal one.

The ionization method is ideal after a pulpectomy, as it obliterates these accessory canals, and it is impossible to extract these terminal filaments which are entirely inaccessible to instrumentation. In infected teeth the ionization is indispensable because of these decomposed rests, since there is no means of removing them. We are not able to do it mechanically and we can make use of only chemical agents to remove them; for instance, by means of the Schreier sodium-potassium method or with some peroxide or perborate agent, which should be followed with the ionic method, using the Churchill solution. Attention is called to the fact that more especially do curved root canals and canals that have been treated persist in presenting periosteal troubles after being filled, and in teeth affected with periostitis and pericementitis due to overtreatment this method offers great advantages.

The author relates a case of two central incisors under treatment for over a year that, after being filled, gave rise to periosteal reactions, and which he was able to fill after treating by ionization for sixteen minutes with chlorid of zinc. He recommends also for these overtreated cases and especially for wide or open canals in the region of the apex the use of magnesium sulphate on account of its intense sedative properties. He laments that the ionic method should not be more in use in preference to the osmotic method and says that after surgical treatments it is the best method we have today and thinks that it should be attempted in favorable cases before resorting to apicoectomy, which should be used in more extreme cases.—*Revista Dental,* Montevideo, 1928.

CEREBRAL TUMOR WITH TEETH FORMATION—ODONTOMAS

By H. Pflüger, Hamburg-Eppendorf, Germany

A specimen was shown of a tumor in a six-year-old girl, who died at the Hamburg Hospital, which had been diagnosed as hydrocephalus. The tumor was about twenty-seven centimeters in circumference, was located and lodged at the base of the cranium and had pushed the cerebrum away to such an extent that only a mere shell of cerebrum covered it. The tumor was filled with innumerable small, hard bodies that proved to be small crowns of teeth and toothlike tissue. It appeared to have grown from the epithelial structure of the hypophysis, and the evolution as a teratoma was in the direction of its ectodermal tissue.

The histological analysis was very

curious and pleasing, as it allowed a profound study in the pathological investigations of this kind of formation in another part of the bony structure under the same conditions as those existing in the jaws. All the embryonic and developmental stages from the first tooth-bud to the completely formed crown could be found here. Especially interesting was the study of the enamel epithelium after the completion of its development, upon which Dr. Pflüger will publish another paper.

In the discussion of the paper Dr. Weinmann asked if, in a histological preparation which he showed, where a non-calcified dentinal zone was observed, there was also lack of enamel formation. Should this be the case, it would confirm the findings of Orban (Chicago) made in the incisor teeth of the rodents and especially in those of rachitic rats. In answer the author says that upon the non-calcified dentinal zone neither enamel nor enamel epithelium was found, but that he found epithelial cells in the folds at this zone. — *Deutsche Zahnärztliche Wochenschrift,* Berlin, 1928.

PRIMARY LUPUS OF THE GUMS

By M. Roy, Paris, France

The author presents three patients affected with primary lupus. Up to the present time lupus of the gingiva has been considered as a secondary affection, after skin lupus, and in its primary form as very rare. The ulcerations on the gums in this case were acute, and he was able to observe two varieties, one corresponding to the region of the mucosa in the lip and one located on the gums. Neither of these showed a tendency to penetrate deep into the tissues.

He speaks about differential diagnosis between tuberculous lupus, syphilitic infections and necrosis alveolaris, all of which diseases should be remembered. In his cases all these factors had to be excluded.

His treatment was surgical, resecting the diseased membranes and gums and curetting the diseased osseous structures.

In looking up the literature he found four cases besides his three personal ones. Upon analyzing the localization six were found in the maxilla and only one in the mandible. His cases were in patients fifty, twenty-five and twenty years of age.—*L'Odontologie,* Paris, 1928.

NEURITIS OCCASIONED BY TRAUMA AFTER AN INJECTION

By Robert Stern, Brünn, Germany

Several cases of neuritis following the injection in mandibular anesthesia have been reported. Studt recently reported two cases of injury of the mucosa in the zone of the mental nerve, his cases being due to the action of the

adrenalin content of the solution. Wegmann says that they are produced by trauma from biting the lips during the stage of insensibility. The herpetic disturbances remaining in the mucosa (herpes zoster) he attributes more to a chemical action of the alcohol used in the disinfection of the hypodermic needles, which, remaining in infinitesimal doses, is sufficient to produce toxic effects, than to the wounding of some nerve fibers, the macerating action of the fluids of the mouth cracking the herpes blisters as rapidly as they are formed, and it is rare to see them intact on the mucosa. The clinical aspect of the region is produced by a vasomotor disturbance such as can be obtained only by an agent like alcohol, which is highly toxic to cell and nerve tissue and its cells.—*Zahnärztliche Rundschau,* Berlin, 1928.

ROUTE OF INFECTION IN POSTOPERATIVE PAROTITIS

By E. Seifert

Before any surgical intervention the mouth should be attended to, not only the teeth but also the whole oral cavity. Cases of postoperative infection of the parotid glands are more frequent than are reported. In the gland habitually is the staphylococcus, which is found also constantly in the mouth. The author thinks that the infection route is Steno's duct, permitting the entrance of the infection because of its lessened resistance to other infectious agents.—*Deutsche Zeitschrift für Chirurgie,* Leipzig, Germany, 1926.

VARIETIES OF STOMATITIS

By Joaquin Weber, Havana, Cuba

The word *stomatitis* has a very wide acceptance, from the simple infection of the mucous membrane of the mouth to the severe cancrum oris, which is a serious disease. Stomatitis can manifest itself as localized in a restricted area or can be diffused, occupying all the mucous membranes of the mouth and fauces. Simple stomatitis catarrhalis is frequently observed in very small children and presents the general symptoms of an inflammation in the form of the symptomatic dolor, rubor, tumor, calor, being accompanied by abundant exudation and secretion. The general age at which children suffer most from this affection is from two to twelve months. Of course, deficient nutrition and unhealthy conditions are important factors. They suffer also during the dentition period. This variety is observed frequently also in patients suffering from eruptive fevers, scarlatina, measles, etc. No specific organism has been found to be the cause. In the more acute cases it may spread on the mucosa over the whole oral cavity, including the tongue, cheeks, lips and palate. Then it acquires an erythematous aspect and

therefore has been called also *stomatitis erythematosa,* the aspect being alarming. From the beginning the treatment must be prophylactic. When properly treated, it should not last more than a few days.

The paper deals extensively with the pathology of stomatitis in all its varieties and with the symptoms of diagnostical differentiation to some extent. In the ulcerous form the author recommends for its treatment, apart from the prophylactic measures which are essential, potassium chlorate, which is a specific in its action, this drug to be administered internally and also in mouth washes and for gargling. Local applications of nitrate of silver either pure or in solution may be used; also, in some cases, trichloracetic acid, and in those of less degree peroxide of hydrogen.

In treating stomatitis pseudomembranosa (commonly called *thrush*), which is a disease of infancy generally found in badly nursed children living in unhygienic conditions, he insists on extreme prophylactic measures with the child itself and with its surroundings, alkalinization of the mouth with frequent washings with bicarbonate of soda, and removal of the thrush with cotton dipped in the same solution every two or three hours. This should be done with care so as to not wound the unattached part of the mucosa. In extreme cases 0.15 to 0.20 grams of potassium chlorate should be administered internally every four hours.—*Cuba Odontologica,* Havana, 1927.

[THE IDEAL DENTURE]

I would say that if we could construct a partial denture so that the support and retention could be equally divided between the abutment teeth and the mucosa, do away with trauma, restore normal occlusion and get a satisfactory esthetic result, we would have an ideal denture. However, conditions which we find in the mouth preclude the possibility of our reaching this goal of perfection. —BONDY.

PRACTICAL HINTS

THIS DEPARTMENT IS NOW BEING CONDUCTED FROM THE OFFICE OF THE DENTAL DIGEST. TO AVOID UNNECESSARY DELAYS, HINTS, QUESTIONS AND ANSWERS SHOULD BE ADDRESSED TO EDITOR PRACTICAL HINTS, THE DENTAL DIGEST, 220 WEST 42D STREET, NEW YORK, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

REMOVING FACINGS—In your *Practical Hints* you advise placing crowns in hydrochloric acid to dissolve cement. This can be done a great deal more quickly by boiling in muriatic acid.

J. G. BOOZER.

Editor, Practical Hints:

There are some dental schools where they do not remove pulps any more. I should like to know which school began that procedure, the year, and in which teeth they do not remove the pulp.

What is your opinion on non-vital teeth?

R. C.

ANSWER.—We regret to say that we cannot give you any information in regard to the policy of dental schools toward pulp extirpation, but we do not believe that any school at the present time advocates the extraction of all pulpless teeth.

The decision as to whether or not a pulpless tooth may be saved depends on each individual case. If the patient has a good resistance with no systemic symptoms and the canals are accessible, then there is no reason why treatment should not be attempted. There should be a distinct understanding that the tooth will always be under suspicion and must be checked by x-ray at stated intervals.

If the patient has poor resistance or has a systemic involvement, then there is no question but that all possible foci of infection should be removed.

This is a summary of the question as it now exists. No definite rule has been established and there is still a certain lack of unanimity among some of the leading men.

Editor, Practical Hints:

Just recently a patient has fallen into my hands who in August, 1926, had an injection of alcohol made for tic douloureux. The effect is now wearing off and he soon will have to have another injection. Will you please tell me where to get the preparation, and if any special technic is necessary?

C. I. C.

ANSWER.—A preparation that is less painful than pure alcohol is:

Novocain 2%

Chloroform	5%
Alcohol	70%
Aqua Pura	23%

This should be injected under novocain anesthesia and only about ¾ c.c. is necessary if you can get it into the nerve. If more than one branch of the fifth nerve is involved, then the injection must be made into the Gasserian ganglion, which is situated on the anterior part of the petrous portion of the temporal bone.

In my opinion, this operation should be done by a surgeon.

Editor, Practical Hints:

I should very much appreciate your advice and help on the following case:

A girl, 18 years old, came to me about six months ago for treatment of what I supposed was Vincent's angina. Upon treating it I found it was particularly hard to clear up. The best thing I found to use on this case was H_2SO_4. Her gums returned to their healthy color and her teeth tightened. I gave her a good mouth-wash to use and dismissed her.

In about three weeks she returned to my office and I found her mouth in as bad a condition as upon her first visit. I sent her to a physician for a physical examination and Wassermann test. He found her to be in a good healthy condition except for the trouble in her mouth, which he also thought was Vincent's disease. I have treated this case four times and each time the trouble has returned. The girl is very much worried about her teeth and seems to follow all instructions as to their care.

What would you advise for treatment of this case?

M. P. C.

ANSWER.—If the case is one of Vincent's angina, which can be best proved by a bacteriological examination, I would advise the reading of the article by Dr. Brody which appeared in the December, 1928, issue of THE DENTAL DIGEST.

Dr. Brody has had a wide experience with this infection, and his methods are worthy of careful consideration.

Editor, Practical Hints:

Have you had any experience or knowledge as to the use of the quartz lamp in the prevention of postoperative pain following extraction?

I understand that this treatment is being advocated by a number of physicians and should be glad of a little knowledge as to its merits.

C. H. H.

ANSWER.—We have not had any experience with the quartz lamp, but there has been quite a little written on the subject, and the results on the whole seem to be good.

Physicians are using it with success for inflammation and strains, and it seems as if it would be well worth trying.

Editor, Practical Hints:

A widow, aged 51, with general health fair, has a low blood pressure of about 90-100. She had a nervous breakdown two years ago. Just before that occurred I filled the upper right molars, when she complained of a

heavy feeling when lying down. The pain ceased after I filled them.

A month ago she came in complaining of the same disturbance. I x-rayed the teeth and found on the second and third molars rarefied areas. I extracted them. There was no after-complication for a week. Since last night the pain has been even of a more acute nature when lying down. A few years ago she had antrum trouble on the opposite side.

I. K.

ANSWER.—From the symptoms that you describe, it would seem that your patient had an infected antrum and should be referred to a nose and throat man. It would not do any harm to take further x-rays of the area where the extractions were made.

Editor, Practical Hints:

I enclose a radiogram of an upper second bicuspid root tip which is draining on the buccal surface.

The patient, female, extremely nervous, complains of arthritis affecting the feet and elbows.

Do you think it should be removed or will it absorb? What would be your technic for removal? Would you advise curettement?

F. J. R.

ANSWER. — A root will not be absorbed and must be removed. The first thing to do is to make sure of the exact location, and x-rays should be taken from various angles.

A flap is cut in the gum over the root and the bone chiselled away until access is gained and the removal can be effected. All softened bone should be removed, but curettage should not be done blindly.

Editor, Practical Hints:

Some months ago I constructed an upper denture for a lady, and she says that if she retains it in the mouth very long the mandibular joint becomes painful. On removal of the plate the pain ceases. Can you suggest the cause?

H. R. S.

ANSWER.—It would appear that the bite has been opened too far by the new denture. This would throw an unusual strain on the mandibular joint, resulting in pain. If the present bite is necessary for esthetics, there is a chance that the patient will eventually adjust herself to the new condition.

There is also the chance that central occlusion was not correctly obtained, and that the mandible is being swung to one side by cusp action.

DENTAL ECONOMICS

Getting Your Money Early

By FRANK V. FAULHABER, Brooklyn, N. Y.

Perhaps there is nothing so irritating to the dentist as the fact that he cannot get proper payment for his work. According to interviews with several New York dentists, when this is the case the dental practitioner has no one to blame more than himself. The consensus of opinion indicates that it is largely the way the public is taught, impressed, and held to punctuality which governs payments, and which determines whether the dentist will have a regular, prompt inflow of money with a successful practice, or whether he will encounter barriers and pitfalls, be put to considerable vexation in eliciting long overdue accounts and operate a nerve-wracking, none-too-sure practice.

Particularly the dentist new to the business cannot afford too much leeway in the matter of payments. He may be uncertain as to how to go about getting the money in time, and he may hesitate to press patients for fear that they may resent his apparent boldness, inasmuch as he is a newcomer, when, as a matter of fact, he shows nothing more than plain business sense. Too many dentists have gotten on the rocks just because of this very money question, and it is true of old-timers as well as of those new to the profession.

The individual observations of different dentists should be interesting and shed light on this very important problem. The following gives key to the procedure followed by one dentist to secure prompt payments:

"I have always contended that the dentist must impress the patient at the very start with regard to payments. In my office it is meet that I receive payment for my work as I proceed. I cannot afford to let this matter hang and that is what I try to teach patients, in a tactful way. I find they have more respect for me and my business if I hold them to prompt due payments and by reason of this policy I succeed in receiving proper payments as the work progresses. There is, in fact, very little difficulty—there's no special trick to it—in getting the money as a successful dentist should.

"Either I or my assistant explains the plan thoroughly. There can be no misunderstanding, no possible loophole, no encouragement for a 'dead-beat.' The dentist cannot afford to do work for nothing and naturally he must see to it that he gets paid for it. And I believe in getting payments as the work advances. With this understanding there can be no doubts, no uncertainties, and because of this I do not operate in a hit-or-miss fashion.

"The patient knows that I expect

prompt payment, and he is prepared for it. I get something on account at the very start. It is pointed out that the dentist assuring quality work cannot possibly be loose with regard to payments. This in itself favorably impresses the patient and gains the respect of all those worthy of the dentist's attention.

"You may be interested to know how I manage to get succeeding payments. The patient may be prone to forget. He may even wish to do so. Matters are gingerly manipulated, however, and often there is need of a fine degree of tact. The dentist need not hold himself back for fear of offending his patient. No flat, undressed money request is necessary—just a simple, suggestive reminder.

"There are various ways of doing this. When I find that a patient is getting behind, perhaps I put the matter in the form of a question: 'Do you want to make another payment?' That is a very gentle reminder and to the patient it conveys the thought that this matter is purely optional with him—a privilege, in fact. There is nothing to annoy. It serves as sufficient prod with most reasonable patients.

"On another occasion I may say, 'We are getting behind in our payments, I see,' and the statement is accompanied by a good-natured chuckle. I've found this so much better than to say, '*You* are getting behind in *your* payments.' My choice, as it were, puts me in the same boat with the patient. Because of this shoulder-to-shoulder suggestion there naturally follows a more ready cooperative response. There is nothing for the patient to resent. Instead he learns to see your side of it in the proper light, and it would surprise you how quickly thereby patients are taught to make regular payments.

"I have no set method of handling patients. I simply suggest this delicate question as the individual case warrants. By knowing your patient, and by knowing particularly how to arouse him, your payments are guided into successful channels."

Another dentist had some very interesting and pertinent observations on this money problem. Said he: "Indeed, it is imperative that the dentist give due thought to the income phase of his business. He cannot let the matter slip by. He must keep the check-reins in his own hands, under his own control. It is decidedly dangerous to permit patients to become careless with their payments and for that reason the dentist does well when he insists on something on account, as his services proceed, in such way that outstanding money does not appreciably exceed a point where it might become dangerous.

"I see to it that payments are made in harmony with the value of professional service rendered. Often it is embarrassing to both dentist and patient, and it is decidedly so when due payments are permitted to accumulate. 'Get them away!' is my advice. The dentist does his patient an additional service when he relieves him of what necessarily becomes an annoying money-worry, as is the case when payments are permitted to hang.

"At the very beginning, therefore, I explain the plan to my patients. The question of fee is unmistakably understood. Seldom is there need for additional charges, and this removes what would otherwise prove an irritation for

many patients, inasmuch as I make a very thorough examination of the patient's mouth and then carefully explain the nature of the work to be done. This procedure wins the patient's confidence and gets him into an agreeable frame of mind.

"The amount of the fee being understood, I then discuss with the patient the nature of payments. I stress the advantage of making regular payments as we go along. In other words, I pin him down to a stipulated, agreeable set of payments. It is an arrangement that is prepared for, that is convenient for both dentist and patient. There are no bills to worry, either. There are no overdue, moss-covered accounts piling up. And I never touch upon the aggravation and disadvantage of bills to patients unless this is absolutely necessary in a case, for instance, where the patient hints or signifies that he desires to pay by check through the mails.

"As a matter of fact, bills are dispensed with. There is no necessity for repeated mailing of bills, statements, dunning letters, which too often only pique the patient and drive away the good-will of the clientele. By reason of this elimination considerable time and energy are spared the dentist, which he can so much more profitably devote to his dental work. And his mind is freed of worry, thus enabling him to perform so much better the professional services to which he wisely should confine himself."

A third dentist had some illuminating remarks to make on this all-absorbing problem. Questioned with regard to delinquent accounts and collection problems, he made a significant gesture with a sweep of the hand. "I tell you, it's the man's own fault," was the way he put it, "if he insists on going into the collection business. That is just what he proceeds to do when he burdens himself with a lot of bills, statements, get-the-money-or-bust letters, reminders, and kindred whatnots, all in the interest of more and better collections, when he should have had the good sense not to trouble himself with those things.

"First of all, I am not a collection agency. I have inculcated into my own mind that I am cut out for a dentist, and that I am going to give my time and thought solely to the dental profession. There is to be no intrusion of worrisome troubles such as attach themselves when the dentist cannot obtain reasonable, prompt payments. I aim to confine myself exclusively to my main work as a dental practitioner, improving myself therein. This I cannot do when beset with collection worries. I don't think any other dentist can, either.

"I've disposed of all collection mediums such as bills and the like, and I make it a point to emphasize, so that the patient cannot be other than impressed and convinced, just how he is assured of better dental work by reason of my particular methods.

"I let him know that a dentist is worthy of his hire just the same as anybody else, and that it is naturally necessary that the dentist receive regular payments for his work. I let him know, too, that by reason of our plan he is given more undivided consideration at reasonable cost. There are no added expenses, nothing in the form of bills, statements, letters, and other

divers office incidentals, all going into the overhead, which in the final analysis must be borne by the patients. I stress the feature, and I let it sink in.

"So I build up constructively right away for the enlightenment of the patient. There is no hedging, no bargaining for a reduced charge, as is so often the case otherwise. I have taught the patient what he can expect, and what in turn I expect from him. So there is an agreeable understanding that immediately steers the patient in the proper way, and that wins for me a respectful impression.

"I use small folders bearing my name, business address and telephone number, besides indicating my profession, on the front cover. There are three other sides, ruled, enough to permit the entering of a liberal record of work and data in connection with any dental service agreement. This is the patient's appointment card and account record, thus serving a double aid in my business. Incidentally, there can be little excuse for ignorance, forgetfulness and other things that cut into a dentist's routine. The patient knows his hour; I know it. There is a mutual understanding. A similar record is kept in my appointment book. And on each patient's card is entered the matter of payments. Perhaps the patient has a preferred plan in mind. I may point out how by making a sizable initial payment this matter is removed from the patient's mind, and that he need not then bother with the money question, as otherwise he would frequently find it necessary to do.

"The whole thing," concluded this dentist, "peters down to the one outstanding essential—get your money early! I can't stress this too strongly. And toward its obtainment it is necessary to educate the patient properly. Make him see where he benefits by paying you promptly. Make him see where both benefit, and where you as a dentist are enabled to furnish better dental service for his money. That is the way to get him to cooperate with you."

The proper way, it would seem, is to collect your money inside, in your office, instead of holding the matter in abeyance. When once it extends beyond the dentist's portals, so that he finds it necessary to prod and push long after the work has been done, the matter often gets beyond his control, to his loss and lamentation.

781 Woodward Avenue.

DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce, care of THE DENTAL DIGEST, 220 West 42d Street, New York City.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE, CARE THE DENTAL DIGEST, 220 WEST 42D STREET, NEW YORK. YOU MAY HELP A NUMBER OF GIRLS WHO ARE JUST BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. OR IF YOU NEED HELP NOW WRITE TO ELSIE PIERCE—SHE'LL HELP YOU.

Dear Miss Pierce:

In answer to Dr. M. B. R., Brooklyn, I would suggest that he saturate the object stained with silver nitrate with pure iodine, then use aqua ammonia, which will have the desired results, removing all stain.

Dr. St. C. D., New Orleans.

We deeply appreciate this suggestion and are glad to pass it on to our readers.

Dear Miss Pierce:

In the December number of THE DENTAL DIGEST, L. S., Pa., asked what could be done to keep the engine cord clean. I am sure that her trouble is caused by too much oil on the pulley bearings. The oil leaks out and gets on the pulleys, then on the engine cord. I always wipe all excess oil off after oiling the pulley bearings, and my engine cord stays clean until it wears out. Use only a few drops of oil.

Dr. E. C. M., Portland, Oregon.

This suggestion is timely, and we thank the Doctor for his interest. No doubt it will help many of our readers.

Dear Miss Pierce:

I am new in the dental office, and I should like very much to know of some articles or books that will give me some of the best forms of speech in meeting patients and in conversation over the telephone. Also, please give me a list of books and articles that will be helpful to a new assistant.

F. R., Okla.

ANSWER.—We do not know of any books that are especially written for correct speech applicable to the daily contacts with patients, either personally or over the telephone. We suggest the textbooks that are used in the high schools for the study of English, as conversations with patients do not differ materially from those held with other persons. Correct English may be

studied from these textbooks and used at any time anywhere. For the study of dental terms, words and names you can use the doctor's dental dictionary; if he does not own one, no doubt he can secure it from the library of his dental society for your perusal.

We suggest that in meeting patients your manner be courteous, coupled with dignity and reserve, and that you always be cheerful but not effusive. Patients do not come to a dental office to be entertained by the assistant, and a pleasant greeting, a quiet demeanor of service, a businesslike attitude while aiding the dentist, and a pleasant dismissal will impress the patients with your ability and charming personality. The same procedure applies on the telephone—this is what is meant by "the voice with the smile."

We suggest that you get in touch with the Library Bureau of the American Dental Association, 58 East Washington St., Chicago, Ill., and ask them to send you their package library for dental assistants. For a very nominal sum you can borrow this package of reading matter for a restricted length of time, and no doubt you would find therein much of interest and value.

We suggest also that you affiliate with the dental assistants' society in your state and your district. In this way you will learn much that will help you in your work. Mrs. N. Payne, 809 Medical Arts Bldg., Tulsa, Okla., President of the State Society, can give you full information.

Dental assisting is not learned in one day. It is the result of close observation plus willingness and determination.

Dear Miss Pierce:

Where may I find a list of schools in my section of the country that train dental hygienists? To whom shall I write for an outline or paper on what is expected of a hygienist?

Are there any dental societies near here? What are the average requirements of such societies? May a girl who is working in a dentist's office, but who has no professional training, become a member?

Where may I find literature especially written for the dental assistant or hygienist?

I have been a constant reader of your magazine for nearly a year and have enjoyed it thoroughly. I only regret that your *Secretaries' Questionnaire* is not ever so much longer.

H. O.

ANSWER.—The two dental colleges nearest you that have schools for the training of hygienists are the North Pacific Dental College, Portland, Oregon, and the Dental School at the University of Minnesota, Minneapolis, Minn. A letter addressed to the Registrar will bring you complete information about the courses.

The Library Bureau of the American Dental Association can no doubt furnish you with the outline or paper that you desire, as well as with literature on the dental assistant and dental hygienist.

Montana has a State Dental Society that will meet at Butte on March 28-30, 1929. The Secretary of the American Dental Association, Dr. H. B. Pinney, 58 East Washington St., Chicago, Ill., can give you the names and addresses of the officers. I do not

believe that any one not a dentist can join a dental society. However, I feel quite certain that your employer can secure an admission card for you to attend the State meeting. As far as a local dental society is concerned, I cannot tell you whether there is one in your locality and whether they admit visitors who are not dentists to their meetings. An inquiry addressed to the Secretary of the State Society should bring you this information.

We are glad to know that you enjoy our magazine and the *Questionnaire*. If our readers each month would send in numerous questions, etc., we should no doubt lengthen this feature through force of requirement and make you happier. Perhaps others feel as you do.

Dear Miss Pierce:

I am writing to you in the hope of finding a good school near Scranton where I can learn a dental assistant's duties. I am just a grammar school graduate and cannot find a way to enter high school, so please tell me what course I should need to study most in preparing for college, and where I could prepare for it.

A. M., Scranton, Pa.

Answer.—We know of no school near Scranton teaching dental assisting.

All colleges require a pre-high-school certificate or its equivalent. If you cannot attend the regular high school sessions, then there remains only for you to attend a night school giving a high school course, selecting the studies that you will require for entrance in the particular college you have selected. The preliminary training for a college course depends on what you intend to qualify for when you enter college. The high school principal will be glad to advise you.

Educational and Efficiency Society for Dental Assistants, First District, New York

The Educational and Efficiency Society for Dental Assistants, First District, New York, held its monthly meeting on January 8, 1929. This first meeting of 1929 is long to be remembered, as the speakers of the evening were exceptionally fine. Margaret Sullivan, D.D.S., gave a splendid talk on health, and Harold Supplee, D.D.S., who has recently given a course in Head Anatomy, talked on the *History of Dentistry and Anatomy.*

On January 3, 1929, Mr. Samuel G. Supplee held a class in compound and plaster for impression-taking.

On January 17, 1929, Dr. George Wood Clapp gave a talk on *Food Values in the Development of Teeth,* which was full of very practical knowledge.

The Clinic Club and classes are now very active and, as very fine lectures are being given at this season of the year, it is hoped that many assistants in ethical offices will welcome the opportunity of being eligible to attend.

The next meeting of the Society will be held on February 12, 1929. The Society meets regularly on the second Tuesday of each month, October to May, inclusive, at the Academy of Medicine, 2 East 103rd Street, New York.

The Training of a Dental Assistant*

By R. S. VINSANT, A.B., D.D.S., Memphis, Tenn.
Dean, College of Dentistry, University of Tennessee

The modern idea of service is quite different from what it was a century ago. At that time the family physician was considered expert enough to take care of all the ills to which the human body became victim. He served his purpose and served it well. Today we have dentists, pharmacists, nurses, ear, nose and throat specialists, heart specialists, diagnosticians, surgeons, proctologists, and scores of other specialists doing the work that he did.

The trend of the times is to have a person well trained in one special field who at the same time keeps his relationship to the other specialists. Even dentists in the last few years have been divided into pyorrhea, prosthetic, oral surgery, crown and bridge, oral hygiene, and orthodontia specialists. Then along with the others comes your field, just outside the oral cavity, which bears a similar relation to the dentist that the nursing profession bears to the physician.

Let us take a glance for a moment to see how this gradual change from the age of generalization to specialization has affected the human race. In the sixteenth century the average life of the individual was between sixteen and eighteen years. In the eighteenth century the average span of life was raised to twenty-five years. In the nineteenth century the average life of the individual was thirty-five years. Today it is between fifty-five and fifty-seven years.

You will notice how quickly the span of life has risen in the last quarter of a century. It has been raised about twenty years in the last twenty-eight years. Isn't this wonderful news? How has all this been brought about? It has been achieved by the different health agencies. Not all has been done by the physician and the dentist, but much by the assistants in their various fields, the sanitary engineer, the chemist, the bacteriologist, the philanthropist, and others.

Your organization has played a conspicuous part in our great health organization—dentistry. One of the most distinguished physicians of this section of the world has said that the next great step in preventive medicine must come from the dental profession. You may wonder from the figures I have quoted how the span of life can be expanded much more. Yet one of the authentic health agencies of America says that 72 men, women and children die every hour from preventable diseases—more than one a minute. Since the next great step in the healing art must come from the dentist, then your organization, which is an auxiliary of the dental profession, must play its part.

No new idea ever came into the world peacefully. The ideals of your organization have had their battles.

* Read before the Fourth Annual Meeting of the American Dental Assistants Association at Minneapolis, Minn., August 22, 1928.

Your purposes have been misunderstood, mistrusted and misrepresented, but the ideal upon which your organization is founded cannot die. This ideal is service to mankind. It is one of the great principles laid down by the Man of Galilee, the lowly Nazarene, whose teachings were as the Rock of Ages, and whose influence for the last nineteen hundred years has been the greatest in molding society. He, the greatest Physician of all time, said you must serve if you would be great, and He exemplified this teaching by taking a towel and washing the feet of His disciples.

As an auxiliary of the dental profession you hold a most important place. Millions of people must trust you. It is upon you that the dentist must rely to see that the diseases of one mouth are not transmitted to other individuals. If the dentist's operations on the teeth are to be the most successful, he must have his amalgams, cements and other filling materials properly mixed before he inserts them. Why a wonderful cavity preparation and toilet if the amalgam will shrink, with the result that caries will follow? I must say again that in this scheme of modern specialization in dentistry you hold a unique position. While you hold this exalted position of trust and confidence in the dental organization and in the public mind, you must accept the responsibility which goes with such trust and confidence.

In looking over the daily press in the last few months I have observed a number of deaths due to septicemia following extraction. I wonder if any of these are due to negligence on the part of the operator or the assistant. I have often wondered how many of the 72 people dying from preventable diseases every hour could be placed to our account. Do you accept your part of this responsibility? Do you suppose any of these people died because of ignorance on the part of the operator or his assistant? Responsibility does not end with those who maliciously kill, but may extend to those who ignorantly do so.

There are so many things to be known about your work that would add to the life of the individual. Let us take, for example, a simple amalgam filling placed in the mouth. We will say the dentist performs his part of the operation in the best way it can be done. If that filling shrinks and decay follows with the loss of the pulp and an abscessed tooth, then are you not the most responsible party, since this shrinkage, as we have learned today, is due mostly to the way and time in which the amalgam is mixed? If the patient dies from a secondary focus which enters through this tooth, cannot the cause be traced directly to your work?

Have you ever made an outline of the things that are done in your office, and how each one of these operations may be improved by you? Could the dentist give better service if you were more efficient? What can you do to bring more patients and better ones into the office? Do you know that the more money your employer makes, the more he can pay you? Do you know of anything you can do that will make the office more attractive? Can you study and read people without letting

them know you are doing it? Do you ever make suggestions to your dentist, not foolish ones but logical and well-thought-out ones? Do you attend your association meetings regularly and try to get new ideas to carry back to the office? Do you ever visit another office with the view of getting new ideas for your own?

Nothing succeeds like success, but you should study the people who have failed as well as those who are succeeding. Some of the greatest lessons I have learned for success have been from men who have gone into bankruptcy. Why have they failed? Why have they not succeeded? We do not have to stay in our own field, for success and failure attend every vocation, profession and business. You and your work have to do with human beings, therefore it is necessary that you understand them in order that your work may be a success.

The difference between a precious stone and a common stone is not an essential difference—not a difference of substance, but of arrangement of particles called crystallization. In substance the charcoal and the diamond are the same, but in form and effect how widely they differ! The pearl contains nothing that is not found in the coarsest oyster-shell. Two women or men have the same thoughts, they use about the same words in expressing them, yet with one the product is real literature while with the other it is platitude. The difference is all in presentation. A finer and more compendious process has gone on in the one case than in the other. The elements are better fused and knitted together. They are in some way heightened and intensified. You will find in your organization assistants with scales of value of service as different as the charcoal and the diamond. The same physical properties are there, but the difference is in the knowledge and training possessed.

Most people in all professions and vocations learn by watching another person and imitating him. This is a habit formed in childhood, and by some it is never overcome. As babies we learn to walk, talk and do most of the physical activities by imitation, but the mind training must be gotten by our own efforts. It is one of the great instruments used by Providence in bringing our natures toward perfection. Yet, if we give ourselves up to imitation entirely and each follows the other, and so on, in an eternal circle, it is easy to see that there can never be any improvement. We shall remain as brutes, the same at the end as we are today or as we were at the beginning of the world.

To prevent this, God has planted in us a sense of ambition and of satisfaction arising from excelling our fellows in something deemed valuable among them. It is this that drives men and women to all the ways we see in use to signalize themselves. Different groups and different people have different ambitions. Lincoln's ambition was to be truly esteemed by his fellow men and to render himself worthy of that esteem. Some allow their ambition to do away with their better judgment, as with Brutus when he killed Julius Caesar. This, I presume, has caused some of the trouble

in your organization and some of the dental profession to prejudice themselves against too much training for the dental assistant. But the incentive in most cases which causes the assistant to step from her rôle to that of a dentist is suggested by the dentist with whom she is associated. The folly of allowing ambition to overcome good judgment is exemplified in Joseph Morris's poem *Borrowed Feathers:*

A rooster one morning was preening his feathers
That glistened so bright in the sun;
He admired the tints of the various colors
As he laid them in place one by one.

Now as roosters go he was a fine bird,
And he should have been satisfied;
But suddenly there as he marched along,
Some peacock feathers he spied.

They had beautiful spots and their colors were gay—
He wished that his own could be green;
He dropped his tail, tried to hide it away,
Was completely ashamed to be seen.

Then his foolish mind hatched up a scheme—
A peacock yet he could be,
So he hopped behind a bush to undress
Where other fowls could not see.

He caught his own tail between his bill
And pulled every feather out;
And into the holes stuck the peacock plumes,
Then proudly strutted about.

The other fowls rushed to see the queer sight,
And the peacocks came when they heard;
They could not agree just what he was
But pronounced him a funny bird.

Then the chickens were angry that one of their kind
Should try to be a peacock;
And the peacocks were mad that one with their tail
Should belong to a common fowl flock.

So the chickens beset him most cruelly behind
And yanked his whole tail out together;
The peacocks attacked him madly before
And pulled out each chicken feather.

And when he stood stripped clean down to the skin,
A horrible thing to the rest,
He learned this sad lesson when it was too late—
As his own simple self he was best.

Most of us do not realize how sacred a thing a legitimate ambition is. What is this eternal urge within us that is trying to push us on and up? It is that force which is prodding us to do our best and not our second best. It is that something within us that makes us unsatisfied, but not dissatisfied—that intangible something which makes optimist instead of pessimist.

If you will pardon a personal reference which I believe reveals a common fallacy in beginners in every field, I will confess a little secret. I had an idea when I began the study of dentistry that after a four-year course I should know all about it and never have to read or study any more—but I was mistaken. Dentistry has completely changed in the last few years. We are finding new ideas every day, and if we succeed we must study continually. You will find that your field is no exception, and as dentistry grows you must grow in order to fulfill your obligation to dentistry and to society properly.

Our late Dr. Kells, of New Orleans, stated that he did not know what could be taught to an assistant in the short courses now offered by the colleges, but I feel this criticism is a little severe. There was a time when the dental course did not require any more hours. It takes time to develop these courses.

Speaking of time in education reminds me of an incident between a certain college president and a student in his institution. The student asked the president if he did not think that two years was long enough to go to school. He was given an answer in the affirmative followed by this state-

ment: "You can grow a pumpkin in three weeks, but it takes a century to grow an oak."

Your college course must be lengthened and revised if it is to be most effective, but time will effect these changes just as it has in dentistry.

If you are to assist in dentistry, you must know the fundamentals underlying this profession. It is my opinion that most of the training must be spent on such basic scientific subjects as chemistry, metallurgy, bacteriology, materia medica, dental anatomy, etc., rather than on the technics. Every dentist has his own way of manipulating the different materials. If the assistant knows when the end-results are correct, she can learn the dentist's technic.

Since the courses now offered in the schools are almost too short even to make a thorough study of the fundamental basic scientific subjects, then it follows that postgraduate study must be encouraged in order to build to the foundation we now have. How can this be done? We must have system.

Dr. G. V. Black gives us the reason for his wonderful success in building a knowledge of his profession. He said that he was able to do the great amount of work that he did because of a rule he established when he began to practice, which was, to go to his office early and devote one hour each day to study, trying to exhaust each subject he took up before going into another. He believed that it was this short time devoted to daily systematic study that enabled him to do the vast amount of work which he has to his credit. One hour a day devoted to study will enhance your value to the profession. It requires tenacity and continuous study.

From the Library of the American Dental Association you have an opportunity to get almost all the information on any subject in dentistry at a very small cost for postage. You should know all the dentist knows about the materials with which he works. If possible, you should know them better than he. You probably have more time for study. If you are tactful, you can be a real inspiration and give much information to the dentist and have his confidence. You should be a cooperative worker and not have to be told everything you learn. Some one has said: "Do a little more than you are expected to do and you will get more than you expect." You will usually find the reward. You will be met by the assistant who will tell you that if you get too smart, you will lose your job. I have never known a man or a woman to be dismissed because he knew his job, but I have known many to lose their positions from incompetency.

Not long ago I started with a party to climb a mountain. We climbed very easily until we were about half way up. Then we sat down to rest. We were fatigued—and the remainder of the journey was the most difficult. It was steep. It was dangerous. The way of least resistance was to give up and return to the foot and write "failure" as to the trip. But there was that something within us which always tends to push us on, and which we have termed ambition. We did not give up. While the last part of the journey was made under most difficult

circumstances, it was the most enjoyable. The scenery was more beautiful. We could see much farther and with it all we had the satisfaction that comes when we have done the thing that is most difficult. We realized our ambition.

It is the last mile in your journey that will be difficult. You may be as good an assistant as the others you know. You may stay in that position very easily without giving up parties or vacations. All assistants may do what you are doing, but when you get above the horizon and you have the ambition, follow it and go to the top. It is the person who can do the most difficult things who is paid the most in service and money. It's the one who can do what can't be done that counts. It is said that the world will make a beaten path to the door of the man who can build a better mouse-trap than his neighbor, even though he builds his house in the woods.

Opportunities unimproved pass away perhaps into other hands. Wealth not employed productively wastes away. A mind that does not think rusts out. Knowledge that is not used fades out of the mind. Sympathies not exercised shrivel into selfishness. The heart that will not aspire loses the power of aspiration.

Are the operations in your office done a little better that those in your competitor's? Is the sterilization more satisfactory? Do the radiograms you develop have a little more contrast? If there are any failures in the operations in your office, do you study why? Do the people coming into your office get the maximum amount of courtesy and service? Is there anything the dentist does that you can do and stay within your field? Are there any unruly patients who come to your office? Do you know enough psychology to help solve the difficulties? Do patients come to the office once and never return? If so, why? Do you know of any objectionable features in your office? Are there any in you or your dentist? If you believe you are perfect, you are not progressive, you are not growing. If the office is the best it can be made and is considered so by you and your employer, then there is something wrong. If we are not going forward, we must go backward.

I am sorry the training of which I have been speaking could not be put into a more definite formula, but there are as many unknown quantities as there are offices represented. I don't know where you are in this training, but, wherever you are, you can certainly start to build, whether it is at the bottom or at the top. Oliver Wendell Holmes said: "The great thing in this world is not so much where we stand, but in what direction we are going."

BOOKS RECEIVED

Table Talks on Dentistry, by Rodrigues Ottolengui, M.D.S., D.D.S., LL.D., F.A.C.D., Editor of *Dental Items of Interest.*

To the subscribers of *Dental Items of Interest* this book will need no introduction. Probably *Around the Table* is the first thing they read when they receive this journal. To them this book will be a source of pleasure, for without doubt they will find in it much that they have never read and more that they will want to read again.

To those who have never come in contact with *Around the Table* this volume is heartily recommended. Written in Dr. Ottolengui's inimitable style, it contains a storehouse of information by various men and a great deal of humor and sound "horse sense." Its value is greatly increased by the cross-index, so that subject or author is readily available.

Dr. Ottolengui has achieved the art of dispensing knowledge easily and painlessly. The perusal of the book does not demand any deep concentration. It is easy to pick up but very hard to lay down.

471 pp., with index. Brooklyn, N. Y.: Dental Items of Interest Publishing Co., Inc., 1928.—A. M. J.

Dental Jurisprudence, by Elmer D. Brothers, B.S., LL.B., Professor of Medical and Dental Jurisprudence, University of Illinois, and Lecturer, John Marshall Law School, Chicago.

When a man gets into legal difficulties, the best thing that he can do is to put himself in the hands of a good lawyer. But since prevention is better than cure, a study of this book may bring about the avoidance of embarrassing entanglements. This is of special importance in these days when malpractice suits are conspicuous by their presence.

Perhaps the most interesting chapters are those on *Skill, Care and Judgment, Malpractice,* and *Compensation.* There is one thing, however, that must always be borne in mind. A book of this sort can show only the general principle involved or what may be termed the consensus of opinion. Rulings on certain definite cases very often vary in different States. This book can be safely taken as a guide and should be in the hands of all active practitioners for ready reference.

238 pp., with index. St. Louis: The C. V. Mosby Company, 1928.—A. M. J.

The Normal and Pathological Physiology of Bone—Its Problems, by R. Leriche, Professor of the Surgical Clinic, Faculty of Strasburg, and A. Policard, Professor of Histology, Faculty of Lyons.

The first thought that comes to mind

is that the physiology of bone is of peculiar interest to the orthodontist, but such is not the case. The general practitioner will find the chapters on the periosteum and the repair of fractures of special interest, while the surgeon will gain much knowledge from the section on bone transplantations.

The translation has been done in an admirable manner by Sherwood Moore, M.D., Professor of Radiology, Washington University School of Medicine, and J. Albert Key, M.D., Assistant Professor of Clinical Orthopedic Surgery, Washington University School of Medicine, and the illustrations are clear, the majority of them being diagrammatic.

224 pp., with 33 illustrations, bibliography and index. St. Louis: The C. V. Mosby Company, 1928.—A. M. J.

[DON'T MAGNIFY SELF!]

Salesmanship in business relates to such a presentation of the good qualities of an article or commodity that the buyer is sufficiently impressed to want to acquire it. Salesmanship in professional life relates to the power of impressing people with the value of the service we are rendering, and with the fact that it would be to their advantage to have this service. As we are the ones who are rendering this service, it would be manifestly immodest and lacking in good taste for us to magnify to the patient the particular value of the particular service we are to render.

—C. N. Johnson.

EXTRACTIONS

Business success falls to the "ad"-venturous.

She's only a real estate agent's daughter, but she knows lots.

A Scotchman decided to go to Niagara Falls on his honeymoon. He left his wife home because she had already seen the Falls.

Taxicab companies are now putting advertisements on the bottom of their cabs, so that pedestrians can read them when they are run over.

(Agent)—Would you endorse our cigarette for two thousand dollars?

(Actor)—For two thousand dollars I'd smoke the darn things.

California cities are always worrying about their water supply. Perhaps the best way to ensure a water supply would be to prohibit water.

(Traveler)—Porter, I want to be called at 5 o'clock in the morning.

(Porter)—Boss, I guess you isn't acquainted with dese heah mode'n inventions. See dis heah button? Well, when you-all wants to be called, you jest presses dat button an' we comes an' calls you.

When the meek inherit the earth it is going to be worth while to walk across town to see the unmeek take it away from them.

(Miss Bright)—I use the dumb-bells to get color in my face.

(Her Uncle)—Sensible girl. That's better than using color on your face to get the dumb-bells.

(Teacher)—Why is that Scotch chap shouting and tearing his hair this morning?

(Student)—Oh, he just got a shine and then remembered he had on his roommate's shoes.

This is the time of the year when people who have been doing nothing all Summer are going to Florida to rest up for the Winter.

A scientist, in swanlike tones, tells us that through chemical treatment trees will soon be available for human food. Ha! ha! New kind of stakes for us, so to speak.

The teeth in the Volstead Law seem to need plenty of gold filling.

The Old Chariot

My old car answers all my needs;
It looks as good as new,
But when I've seen the Auto Show
I know it will not do.

It's only been 10,000 miles,
And pleases me a lot,
Yet when I see the Auto Show
It doesn't look so hot.

There's nothing that she will not do;
Up steepest hill she'll breeze;
She's grand until I see the Show—
Then she's a piece of cheese.

A Scotchman saved his own life the other evening. He started to asphyxiate himself, and then discovered that he'd have to put a quarter in the meter.

(Husband)—My wife is now an inveterate smoker. Why, three times she's set the bed on fire with her cigarettes. Would you recommend a suit for divorce?

(Lawyer)—Either that or a suit of asbestos pajamas.

Scientists say plants make love like human beings, but somehow we can't imagine the rose talking baby talk to poison ivy.

First Aid

"Have you given him anything or done anything to relieve him?" asked the young doctor, who had fared far into the backwoods to see a patient in the dead of a stormy night.

"Well, no, doc—that is to say, nothin' to speak of," said the wife of the patient. "I had him soak his feet in almost b'ilin' water with a lot of mustard in it, an' I clapped a red-hot plaster on his back, an' another one on his chist, an' I've put a couple of blisters I had in the house under his arms, an' a bag o' cracked ice on the back of his neck, an' had him drink a pint o' ginger tea with a dash o' rum in it jes' as hot as he could swaller it, an' I follered that with some yarb bitters one of the neighbors sent over, an' I had him take five or six pills out of a box I got one day from a man that come along with medicine to sell, an' he's had three or four spoons o' Quakem's pain-killer an' one o' these sidelitz powders, but I didn't feel like as if I ort to give him much o' anything, or try to do much for him, until you come an' see what you think ailed him."

FUTURE EVENTS

THE COLLEGE OF DENTISTRY AND ALUMNI CLINIC OF THE UNIVERSITY OF IOWA will hold their annual meeting February 8-9, 1929, in Iowa City, Iowa.

There will be a general clinical program by selected clinicians and lectures by Dr. Ewell Neil of Nashville, Tenn., on *Full Denture Technic.*

THE DALLAS MID-WINTER DENTAL CLINIC, sponsored by the Dallas County Dental Society, will be held at Dallas, Texas, February 11-13, 1929.

The clinicians for this meeting are Drs. T. W. Maves, Cleveland, on oral surgery; James W. Crawford, Milwaukee, on prosthetics; Menifee R. Howard, Denver, on surgery, and Oren A. Oliver, Nashville, Tenn., on orthodontia.

BROOKS BELL, JR., D.D.S., *Secretary,*
Baylor University College of Dentistry,
Dallas, Texas.

THE STANDING COMMITTEE OF THE ALUMNI OF THE SCHOOL OF DENTAL AND ORAL SURGERY OF COLUMBIA UNIVERSITY have set February 12, 1929, as the date for Alumni Day, and the third Saturday in April for the annual dinner. The last meeting of the year will be held during the last week in May.

On Alumni Day there will be table clinics from 9 A. M. to 11 A. M. on Prosthetics, Oral Surgery, Crown- and Bridgework, Carving of Tooth Structure, and Pathology. From 11 A. M. to 12 noon there will be lectures by prominent men.

The annual dinner will be held on April 20, 1929, at the Hotel Westminster, 420 West 116th St., New York, N. Y.

THE WASHINGTON UNIVERSITY DENTAL ALUMNI ASSOCIATION will hold its annual meeting in conjunction with the dedication of the new Washington University Dental School Building on February 22-23, 1929.

THE MINNESOTA STATE DENTAL ASSOCIATION will hold its forty-sixth annual meeting in the Auditorium at St. Paul, Minn., March 6-8, 1929.

A cordial invitation to attend this meeting is extended to all members of the American Dental Association.

GEORGE D. ESTES, *Secretary,*
911 Yeates Bldg.,
Minneapolis, Minn.

THE TEXAS STATE DENTAL SOCIETY will hold its forty-ninth annual convention at Beaumont, Texas, April 16-19, 1929.

A cordial invitation to attend is extended to all ethical dentists who are members of state societies.

For information relative to exhibits, write to Dr. John E. Story, Chairman, Goodhue Building, Beaumont, Texas.

J. G. FIFE, *Sec'y-Treas.,*
Medical Arts Bldg., Dallas, Texas.

THE CONNECTICUT STATE DENTAL ASSOCIATION will hold its sixty-fifth annual convention at Waterbury, Conn., April 30 and May 1-2, 1929.

THE VIRGINIA STATE DENTAL ASSOCIATION will hold its annual meeting in the Hotel Danville, Danville, Va., April 30-May 2, 1929.

A. M. WASH, D.D.S., *Sec'y-Treas.,*
504 Medical Arts Bldg., Richmond, Va.

THE NORTH DAKOTA STATE DENTAL ASSOCIATION will hold its next annual meeting at Grand Forks, N. D., May 14-16, 1929.

L. I. GILBERT, D.D.S., *Secretary,*
Fargo, N. D.

THE DENTAL ASSISTANTS ASSOCIATION OF THE STATE OF NEW YORK will hold its first annual meeting at Rochester, N. Y., May 16-17, 1929.

A cordial invitation is extended to dentists, dental hygienists and dental assistants to attend the sessions and clinics.

ZOA H. DICKHAUT, *General Secretary,*
344 Woolworth Building,
Watertown, N. Y.

THE DENTAL SOCIETY OF THE STATE OF NEW YORK will hold its sixty-first annual meeting at Rochester, N. Y., on May 15-17, 1929.

A cordial invitation is extended to all ethical dentists who are members of state societies to attend. The Society will be pleased to extend a cordial welcome to all ethical Canadian dentists also.

For information with reference to the exhibits,

write to E. G. Link, 226 Cutler Bldg., Rochester, N. Y.; clinics, John T. McIntee, Chairman, Cutler Bldg., Rochester, N. Y.; literary exercises, etc., A. P. Burkhart, Secretary, 57 East Genesee St., Auburn, N. Y.

THE AMERICAN SOCIETY OF ORTHODONTISTS will hold its annual meeting in Estes Park, Colorado, July 15-19, 1929. All ethical dentists are invited. A registration fee will be charged to non-members.

Hotels are Stanley (headquarters), The Crags, Lewiston and Elkhorn Lodge. For hotel information, write to Dr. Fred W. Beesley, Republic Bldg., Denver, Colo. Regarding transportation, write to Dr. Kirman E. Taylor, Mack Bldg., Denver, Colo.

ALBERT H. KETCHAM, D.D.S., *President*,
1232 Republic Bldg., Denver, Colo.
CHARLES R. BAKER, D.D.S., *Secretary*,
708 Church St., Evanston, Ill.

THE ARIZONA BOARD OF DENTAL ENGINEERS will hold its next meeting at Flagstaff, Arizona, beginning July 29, 1929.

For further information and application blanks, address

EUGENE MCGUIRE, *Secretary*,
420 Security Building,
Phoenix, Arizona.

A. D. A. MEETING

OCTOBER 7-11, 1929

WASHINGTON